Personnel

September/October/1958

How to Find the Best in Every Man

What Makes a Man Creative?

Can Appraisal Counseling Be Taught?

Calculating the Cost of Labor Turnover

Research Management: The "Associate" Approach

Some Significant Advances in Social Science Research and the Better Use of Human Resources

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—TEMPLE BURLING, *You Can't Hire a Hand and Other Essays.*

personnel

Volume 35, No. 2 • September-October, 1958

How to Find the Best in Every Man 9

Bernard Haldane explains his "Success Pattern" theory and shows how it can be used to encourage individual growth and development.

What Makes a Man Creative? 18

Robert F. Peck singles out some characteristics of the creative personality as revealed in projective tests of a group of highly creative engineers.

Can Appraisal Counseling Be Taught? 24

Robert Hoppock discusses the coaching skills that can be learned and outlines a workshop program for teaching them to managers.

Calculating the Cost of Labor Turnover 31

Frederick J. Gaudet itemizes the various costs that turnover involves, and points out some common errors in calculating them.

Research Administration: The "Associate" Approach 38

J. H. Myers and W. A. Carter describe an administrative procedure designed to facilitate the supervision of research teams.

The World of Work: Current Research Trends

I. Some Significant Projects in Recent Management Research 43

Thomas Q. Gilson reports what leading social scientists themselves regard as the most significant research projects of the past decade.

II. Personnel Research and the Better Use of Human Resources 50

John C. Flanagan reports the findings of some recent studies by the American Institute for Research.

An Economist Looks at the Shorter Work Week 60

Herbert Stein considers we have now reached the point where there is little to be gained from a further reduction in working hours.

Developing Engineers for Management Responsibility 66

Howard W. Johnson points out four ways to give technical men the broader outlook needed for the manager's job.

What Students Think of Campus Recruiters 72

Edward M. Krech, Jr. draws a somewhat unflattering picture of the typical company recruiter as he appeared to this year's graduating class of Cornell's Business School.

A Tested Approach to Engineer Salary Administration 77

Morton Adelberg describes the program developed by Vertol Aircraft Corporation to insure more equitable salary administration for its engineering personnel.

DEPARTMENTS

Strictly Personnel 4

Personnel Bookshelf 83

Who's Who in This Issue 93

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strictly personnel

Latest Data on Salesmen's Compensation

SALESMEN in manufacturing companies are now earning about 4.2 per cent more than they did last year, according to a survey of 32,000 sales personnel just completed by AMA's Executive Compensation Service.*

The results of the study—the Service's third annual sales compensation survey—show that the total compensation paid to salesmen varies widely, principally with the level of responsibility and the type of market served. In general, consumer products salesmen earn considerably less than industrial products salesmen. However, this year, the average earnings of consumer salesmen increased 6.9 per cent while that of industrial products salesmen rose only 3.2 per cent.

Reflecting what seems to be a trend toward greater use of incentive plans, more than 75 per cent of the firms surveyed pay their salesmen bonuses and/or commissions. These incentive payments range from less than 10 per cent to 100 per cent of total compensation, depending on the type of plan and the industry. Salesmen who receive bonuses or commissions are paid lower salaries than salesmen on salary alone, but generally their total compensation is higher, the study shows.

The study also shows that the use of a fixed daily expense allowance seems to be slowly dying out. Only 5 per cent of the companies in the industrial products market limit their salesmen to specific daily amounts for expenses. In the consumer field, the practice is somewhat more common—15 per cent of the participating companies in this group still use per diem rates. The overwhelming majority report, however, that they simply reimburse salesmen for all reasonable expenses, though some form of control over the traditional swindle sheet is generally maintained.

*The complete report on the Compensation of Sales Personnel has just been issued to subscribers to AMA's Executive Compensation Service. Further information on this and other ECS reports may be obtained on application to AMA headquarters.

Executive Age and Retirement: A Topside View

THOUGH IT IS generally agreed that the calendar is no index to an executive's capabilities, the responses of a panel of 162 top company presidents to a recent poll by *Dun's Review and Modern Industry** show that in actual fact age is a hurdle that cannot entirely be overcome by the logical process of treating each case on its individual merits. Even companies that have no set age limits on hiring or retiring executives often wind up, in practice, acting much the same as they would if they did have a fixed policy.

*K. Henry, "Top Management Looks at Executive Age and Retirement," *Dun's Review and Modern Industry*, Sept., 1958.

Most of the panelists were of the opinion that an executive is most productive over the 20-year span from 40 to 60. On this view, bringing in an older executive from the outside, aside from all other considerations, looks like a poor investment for the company—he just does not have enough productive years left. Similarly, when it comes to the touchy question of retirement, though the individual executive concerned may have given no signs of slowing down, keeping him on may be a block to the advancement of younger men just entering upon their most productive span.

That age exerts all sorts of subtle pressures unconnected with personal ability was evident from the fact that, though these presidents had been elected to their present offices anywhere from 27 to 68, in general they agreed that between 47 and 49 is the ideal age for a man to assume top corporate responsibility. By this time, he has enough experience and knowledge to run the company and enough years ahead of him to carry long-range plans through to fruition. Typically, the president in his thirties or early forties finds his inexperience a handicap in dealing with more seasoned subordinates (though he may be compensated by such qualities as aggressiveness, imagination, and "animal energy") while, at the other end of the scale, the top executive in his sixties finds it difficult to sell long-range plans he will not be around to carry out.

On the whole, the survey shows that, despite its obvious drawbacks, mandatory retirement has a fairly solid basis in practical experience. Four out of five of the panelists were in favor of it, in principle. Fully one half believe, however, that the lengthening life span may force business to change its present retirement policies. If the life span continues its upward trend, retirement age may have to be extended three, five, or even 10 years beyond today's commonly accepted cut-off point of 65, many presidents think, to avoid otherwise prohibitive pension costs to the company.

Group Effort vs. The Individual Mind

IT HAS OFTEN been claimed that the giant corporation, with its superbly equipped laboratories and serried ranks of Ph.D.'s, enjoys an enormous head start in the race for technological innovation. Is this actually so? Some interesting evidence to the contrary is to be found in a fascinating study recently carried out by Professor John Jewkes, of London University, under a grant from The University of Chicago Law School.*

In the course of their researches, Professor Jewkes and his colleagues made detailed studies of the history of 61 outstanding twentieth-century inventions. On the facts they have assembled, over half the inventions listed turn out to have been pioneered by men who carried on, often with limited resources, without the backing of organized research of any kind. If the discoveries of university scientists are also ranked among the "independent" contributions to technological progress, the record of purely industrial research looks much slimmer than is generally supposed.

* J. Jewkes, *et al.*, *The Sources of Invention*, St. Martin's Press, New York, 1958. $6.75.

Though Du Pont can certainly claim sole credit for nylon and Bell Telephone Laboratories for the transistor, some outstanding inventions have also been made by comparatively small companies, sometimes working in fields relatively new to them, the study shows. Thus DDT was discovered by chemists in the Swiss firm of J. R. Geigy, primarily manufacturers of synthetic dyestuffs; and polyester fiber, better known as Dacron, was the invention of two research workers in the British Calico Printers' Association, a small textile organization that had no direct interest in new fibers. Small and medium-sized companies appear to have been equally successful at development also, despite the frequent assertion that development costs are so enormous nowadays that only the large corporation can afford to underwrite them.

Nevertheless, Professor Jewkes notes, there are some types of innovation that favor the large organized research team. It is important to distinguish, he points out, between the invention of a device that has never existed before and the discovery of something that is simply waiting to be found. A chemist may accidentally turn up some new and surprising property in a known compound, whereas it is highly unlikely for a chemical engineer to stumble upon a device that he has not been consciously seeking. Where the main approach to invention lies in search and observation, the ground to be covered can systematically be divided up among different researchers: so long as there is known to be a needle in the haystack, the more people who are looking for it, the sooner it is likely to turn up.

On the whole, however, this study provides little support for the view that innovation can be generated by mass effort alone. The giant leaps forward are still predominantly the work of the individual inquiring mind—and the company trying to assess the chances of its relatively puny research efforts can take heart from Professor Jewkes' conclusion that "discovery is still a matter of scouting about on the surface of things where imagination and acute observation, supported only by simple technical aids, are likely to bring rich rewards."

Automation and the Upgrading of Skills

THE VIEW that office automation is likely to bring about the upgrading of white-collar jobs was questioned by Dr. Jack Stieber, Associate Director of Research at Michigan State's Industrial Relations Center, in an article in this magazine about a year ago.* Research studies on the effects of office automation thus far, he pointed out, seem to indicate that most clerical workers will continue to do much the same work as before, or work at about the same level of skill.

Some strikingly similar views on the effects of automation on production jobs have now been put forward by Professor James R. Bright, of Harvard.** From his studies of automatic production systems in 13 plants in a wide range of industries he concludes that, in most cases, automation, far from increasing the demands on

* J. Stieber, "Automation and the White-Collar Worker," PERSONNEL, Nov.-Dec., 1957, pp. 8-17.

** J. R. Bright, "Does Automation Raise Skill Requirements?" *Harvard Business Review*, July-August, 1958, pp. 85-98.

the worker's skill, education, and attention, often has precisely the opposite effect.

Citing numerous examples of what actually happens to job content, Professor Bright points out that the various demands of any given job are changed as the levels of mechanization and automatic control increase. Once mechanical is substituted for manual power, the subsequently increasing degrees of fixed control call for less control from the operator. Proceeding through such phases as mechanical measuring, feed selection, and speed adjustment, the machine eventually reaches the point where it is able to correct its own performance and adjust itself without human help. Thus, the more automatic the machine, the less the operator actually has to do.

At the lower levels of mechanization, Professor Bright points out, the worker may need more knowledge and training than if he were doing the job manually. But after the point of mechanical measurement has been reached, the demands on his physical effort, judgment, and degree of control diminish as mechanization increases. Similarly, there is a need for greater mental effort at the lower stages of mechanization, but this too decreases after a certain point of automaticity has been reached. The steel mill workers in Charles R. Walker's *Toward the Automatic Factory* who repeatedly experienced mental strain did so, Professor Bright concludes, not because the equipment was more automatic but because it was not automatic enough.

In any event, he found little evidence of skill shortages or retraining needs in the automated plants he studied. Of the 5,000 production workers and 2,000 to 3,000 maintenance men employed, there were less than a dozen instances of new direct or indirect labor skills being needed, and only about 50 cases of maintenance skill shortages, chiefly in the electronics field.

Employee Investment: One Company's Program

ONE DISADVANTAGE of company-stock purchase plans is, of course, the fact that, in times of declining earnings, employees face the same hazards as ordinary stockholders. The specter of dwindling dividends has probably discouraged many companies from installing such plans, despite the apparent eagerness of employees to take a flyer on the company's future.

American Motors Corporation, a company that has only recently emerged from a prolonged period of deficit operations, has adopted a different approach to this problem. Instead of tieing its plan to company stock, American Motors offers its employees enrollment in the New York Stock Exchange's Monthly Investment Plan. The company makes no attempt to influence employees as to what securities they should buy—or whether they buy any at all; the responsibility for these decisions rests solely with the individual employee. While making it convenient for employees to participate, American Motors does not guarantee or make any financial contributions to the plan.

To enroll in the plan an employee fills out a purchase order, designating the stock he wants to buy, and a payroll deduction authorization, specifying the

monthly or quarterly sum to be deducted. The company forwards the order, as well as the periodic payments, to the brokerage firm handling the accounts. However, employees are free to seek statistical, reporting, or counseling service from the brokerage firm or from any other source.

Before setting up the program on a company-wide basis, American Motors circularized all supervisory and managerial employees in its central office. Those who indicated interest were invited to a meeting at which a representative of a brokerage firm answered questions. Some 10 per cent of this group decided to enroll in the plan. After several months, it was extended to all company employees.

While the program has not been operating long enough to evaluate its benefits, American Motors believes that it provides a valuable service to employees who want it, without infringing on their personal affairs. Further, thinks President George Romney, this kind of first-hand experience with the risks and rewards of the profit system is a far more effective form of adult education than bundles of "free enterprise" literature in the company reading rack.

Job Changing: Who Switches and Why

ABOUT 8.4 million of the 75.4 million workers who were employed in 1955 changed jobs at least once during the year, reports *The Occupational Outlook*. Job moves were most frequent among young people between the ages of 18 and 24; more than one fourth of the men and about one sixth of the women in this age group made changes. Among workers from 25 to 54, about 12 per cent of the men and 7.5 per cent of the women were job changers.

Managers, officials, and proprietors made fewer changes than any other occupational group. Farm operators were the next most stable group, while laborers had the highest rate of changing.

In more than a quarter of the shifts, workers changed their employers, but continued to do the same kind of work in the same industry. A slightly smaller proportion continued in the same occupation but changed industries. Only a few stayed in the same industry and changed their occupation. Almost half the job changes represented shifts into both a different occupation and a different industry.

Nearly 40 per cent of those who changed jobs gave the desire for improvement as their reason, while economic factors, chiefly layoffs, were cited by about 25 per cent. Various other reasons, such as illness, or the ending of a temporary job, accounted for the rest.

The reasons for changing often varied with the age, sex, and occupation of the worker. For example, workers over 45 did not quit to take a better job as often as younger workers did. Similarly, economic reasons for job changing, such as layoffs and business failures, were more important among blue-collar than white-collar workers.

Industry is coming to recognize that a man can grow only in his own way. Can the so-called "objective" techniques of selection and appraisal point out the path he should follow? Rather, the author suggests, we must focus on what each man knows about himself.

How To Find The Best In Every Man

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NOT ONLY THE organization, but society itself suffers when people are allowed to sacrifice identity in the damp laundry of mediocrity," said Crawford H. Greenewalt in the course of his recent McKinsey Foundation Lectures. "Men as well as children can lose their way in crowds. Men in organizations can be obscured, frustrated, or overlooked; injustices may be done, indignities suffered, promise suddenly turned to indifference. It is the better part of leadership to see that this doesn't happen, that no individual is hidden behind his neighbor and his potential dissipated."

Du Pont's president is hardly a voice crying in the wilderness. Business leaders and educators throughout the nation are deploring the pressures leading to conformity. Forward-looking companies everywhere are searching for ways and means of insuring that (to quote Mr. Greenewalt again) "each individual be given the opportunity to exploit his talents to the fullest and in the way best suited to his personality."

Can this end be achieved through the use of the old tools that helped create and make acceptable the organization man? Consider these facts:

► Really competent men are discouraged by job application forms and other routinized selection procedures.

► The standard application blank is designed more to screen out applicants and to maintain departmental records than to bring out what a man's "best" really is.

► In the typical employment interview, more time is spent in probing for an applicant's weaknesses than in trying to find his strengths.

► Though companies talk about wanting to use a man's "best" qualities, this is usually no more than a pious expression of hope. Mostly, the person

conducting the interview seeks only a certain level of performance and does not look for abilities beyond that.

► Psychological tests are still far away from proving reliable predictors of future performance.

► Management training and development programs (to put it mildly) have hardly lived up to their advance billing.

In short, as a means of finding and developing the best a man has to offer, existing methods of selection and appraisal seem to be considerably less than perfect. Unfortunately, though no one is really satisfied with them, dogma and vested interest still combine to preserve the old techniques. Admittedly, they have their uses—but how useful are they, on the whole? What is the point of trying to patch the old quilt of procedures that are clearly failing to meet current needs?

While I do not go so far as to suggest that the old methods be abandoned; I maintain that they call for some highly critical re-examination—and that others which show promise of yielding better results should be intelligently and sympathetically explored.

One promising procedure of this kind is the Success Pattern. Though its roots go back almost 20 years, when I demonstrated it recently at an AMA seminar, the audience hailed it as "fundamental" and "new." Perhaps the novelty lay partly in the fact that, unlike other evaluation techniques, the Success Pattern procedure is concerned solely with uncovering the motivational, ability, and personality factors that combine to make a man successful. In other words, it provides answers to such questions as:

What is this man's "best"? What are his real values?

How can he be stimulated to perform at his best more of the time?

What are the kinds of activities at which he can be expected to do well in the future?

This is the nub of the problem confronting every forward-looking company. Perhaps it is best summed up in the words of C. F. Craig, Chairman of American Telephone and Telegraph Company: "If we want the exceptional qualities of men to emerge to the full, we must encourage each man to grow in his own way."

In this article—a distillation of the experience gained from interviews with some 40,000 people, along with my work with many colleges, government agencies, and business and professional groups—I shall explain the principles on which the Success Pattern is based and go on to show how the informal interview procedure we have developed can be used to identify and develop the best each man has it in him to give.

The Underlying Principles

The theory of the Success Pattern follows from three simple premises. Perhaps it is their very simplicity that has caused them to be generally overlooked:

1. A man's future success is shaped by the same factors as have determined his success in the past. Hence it is *more* instructive to know in what

ways he has been successful than to study his mistakes.

2. To get the best out of a man, you must look for the best that is in him. And since he alone knows what he believes his best to be, he must be asked what it is.

3. When a man feels that a particular experience represented a success or achievement *for him,* that experience must have called forth the use of many, if not most, of his best qualities.

The implications of each of these points are worth examining in more detail.

Consider, for a start, that familiar injunction, "Profit from your mistakes." Almost all of us have had drummed into us the belief that when we have made a mistake we must analyze it, find out its cause, and make up our minds to avoid doing the same thing again. Nobody tells us to follow the same principle with the things we did right. But which is more important—to know what led to our successes or what led to our mistakes?

You learn about what you study. If you study arithmetic, you learn about arithmetic. If you study accounting or zoology, you learn about accounting or zoology. If you study mistakes, you learn about mistakes.

By the same reasoning, if you study successes or achievements, you learn about successes or achievements—and when you know the steps that have led to one achievement, you know what to look for to attain another and possibly greater one. Why spend time trying to avoid the mistakes you don't want to make, when you can be devoting the same time to looking and planning for the success you do want?

Only He Can Know Himself

Now for our second point—if you want to get the best out of a man, you must look for the best that is in him. The question here is, how do we look? As J. Douglas Brown and Frederick Harbison, of Princeton University, recently pointed out, ". . . all measures for the development of high talent must begin and end with the individual." And again, "Mass methods are not effective in discovering high talent or nurturing its growth." Other research conducted by *Fortune* supports this conclusion; and a Ford Foundation report on manpower resources lends further authority to it.

Yet a leading consulting firm is presently using psychological tests and electronic "brains"—both statistical or mass tools—on a huge scale, with the aim of providing more reliable means of identifying executive talent. Answers to test questions given by several hundred executives over a period of some five years are being taped for cross-check and correlation; at the same time, data on their backgrounds are being accumulated for tabulation in due course. (It is worth noting that the psychologist in charge of this project had not, at the time this article was written, asked any of the 600 executives being studied what he considered his greatest achievements or successes to be.)

It is generally believed that by using statistical tools of this kind we achieve that much-sought-after goal, "objec-

tivity." But here we are simply confusing "objective facts" with the "objective viewpoint of facts." No man can be completely objective. He always sees things from his own point of view, and this point of view is always biased in some degree. One reason why the concept of multiple appraisals has been widely accepted is that it offers a means of limiting (though not removing) the effects of individual biases.

Actually, there is a vast difference between Socrates' precept, "Know thyself," and Burns' romantic and imaginative plea, "O would some power the giftie gie us to see ourselves as others see us."

Knowing oneself implies self-understanding of a kind that cannot be comprehended by others. Self-understanding—however incomplete—is of necessity "subjective." If a man is to increase in self-understanding and "to grow in his own way," subjective, not objective, methods of evaluation are needed.

Here, no doubt, projective tests, such as the Rorschach, the TAT, and so on, can be helpful. But their widespread application is hindered by the fact that very few people are qualified to administer them, and fewer still are professionally equipped to interpret the findings. And—aside from the further disadvantage that the expense of using them on any general scale would be prohibitive—there seems to be a growing resistance among executives to the tendency for psychological tests to displace human judgment.

Clearly, then, there is a need for an inexpensive, reliable, and easily administered subjective mean of evaluation. What a man feels constitutes his "best" is something that he alone can tell. Certainly, no outsider can deduce it simply by reviewing his work history. The first step, therefore, is to ask the man himself. Obviously, a fair amount of probing is needed to determine what his best really is. We cannot jump to conclusions on the basis of a single, isolated example. Nevertheless, his answer to the question, "What do you feel was your greatest success or achievement?" provides the necessary starting point. (I have studied hundreds of application blanks and scores of appraisal or evaluation forms. I have yet to see such a question—though I suppose it is to be found somewhere.)

A Man's "Best" Expresses His True Self

Now let us take a look at our third point—what a man feels is his best is something into which he has put his best.

Just as high mechanical efficiency depends on the smooth coordination of the power, materials, and mechanisms needed to perform a particular task, so, in man, good work and job satisfaction—what we ordinarily call success or achievement—follow from the concentration, coordination, and application of his best qualities. Any experience which a man looks back on as constituting an outstanding achievement for him is something he has put his heart into, regardless of whether he made money out of it or

not. In other words, it is a form of self-expression, an affirmation of his true worthwhileness.

This is the kind of experience a man is likely to talk about when he is asked what he considers his greatest achievement or success has been. It is something he feels proud of having done.

Obviously, an experience of this kind can contribute much to a man's development. Having tasted the joys of achievement once, he is likely to want to do even better the next time a similar opportunity comes his way. But, as I have pointed out, no one encourages him to study his successes. No one asks him about his "best." Instead, he is advised to ponder his mistakes—to study what not to do, instead of concentrating on improving his performance of the things at which he has already demonstrated a capacity to excel.

As I have said, the three points discussed above lead to the theory on which Success Pattern procedures are based. We have now reached the point where we can express the theory in its simplest terms:

> Each new success proceeds from a foundation of earlier achievements. By analyzing these achievements, we uncover the dynamic factors that have contributed to a man's success thus far. These factors combine to form his Success Pattern. By studying his Success Pattern, we can then determine the direction and rate of his further progress and development.

Here, perhaps, it should be reiterated that a single example is not a reliable guide to what a man's "best" really is. What we must look for are his consistent qualities. Hence, it is necessary to analyze a number of his most successful experiences to determine the Dynamic Success Factors that comprise his Success Pattern.

Because the feeling of achievement is not necessarily connected with earning money, every man can recall several successful experiences, some of them going back to his earliest years. There seems, in fact, to be a greatest achievement for each year, or each few years, of a man's life. Sometimes they cluster together in bunches. Each of them, on analysis, will be found to include some dynamic success factors.

(By way of example, the first six issues of *Reader's Digest* for 1958 contained at least nine stories of people with distinct Success Patterns going back to early childhood. They ranged from a fire warden, an opera star, and a bird watcher to Henry Ford, and the rocket expert, Wehrner von Braun.)

Further, it should be noted that when a man's success record is analyzed in this way, his experiences are separated from the qualities he has applied to them. A bird watcher, for instance, uses keen perception, sense of color, interest in outdoor activities, and patience. Obviously, these qualities can be equally well applied to a number of other occupations.

By distinguishing a man's qualities from the way in which they have been applied, we can then readily see how or where these qualities may be advantageously used in other directions. Flexibility of this kind is of prime importance in this rapidly changing world of ours.

Let's take a look at some actual cases. As the following examples show, the outcome can be positive or negative. Either way, however, they illustrate the possibilities opened up by the study of a man's successes—possibilities that seem to have been largely overlooked.

Two Case Histories

"I won a case of first impression in a court of last resort," Bill wrote, when asked about his greatest achievements. This one, he said, was his greatest. Actually, his real victory lay, not in winning the case, but in persuading his superiors to let him take it to the highest court. Supreme Court rulings in similar situations had convinced them that an appeal was bound to lose. But Bill developed a theory which he used to "sell" the idea of an appeal to his superiors. Note that he used the word, "sell."

His next greatest achievement, he said, was helping a religious order to raise funds. Noticing that visitors to the monastery often tried to buy a certain item, he worked out production and marketing requirements, as well as operating methods, sales techniques, prices, and the package. It is now distributed on a wide scale.

The earliest achievement he could recall was when he was 11 years old: he made a "deal" with the owner of a large estate to collect and sell his eggs and chickens. In less than six months, this business was bringing him in an income of $35 a week, and providing employment and income for a younger brother as well.

Of another important achievement, he said: "I built my practice from scratch. There was not a phase of the law that I did not turn my hand to. I also arranged to co-broke with several large real estate offices. This was a life saver, for on sales of real estate I made enough to keep the office going." He also mentioned, as achievements of major importance to him the organization and leadership of some highly successful bond-selling campaigns.

His mother was confident that he could be a successful lawyer, as his father had been. He came to me because he himself wasn't sure that the law was right for him.

This may be too simple a case. The record was clear—right from early boyhood he had put his heart and talents into business organization and selling; these were the activities he enjoyed, and that brought him results of which he was proud. It was obvious that, while he could apply himself to law with success, he probably would do better in some kind of promotional or sales management activity where his legal training could be used.

The increased self-understanding that came to him through analysis of his Success Pattern helped him decide to move into the business world where he could "grow in his own way."

Here, by contrast, is the case of John who, at the age of 42, came to me aiming for a sales management job "at the administrative level." His greatest achievement, he said, was his work as a wholesale salesman, when, traveling across the country, he was

able to secure a substantial number of new accounts. His next-best success, he thought, he achieved as manager of a one-man-and-helper department, where his "personal efforts" boosted sales almost 50 per cent in two years. Third: when he was 20 years old, he was made manager of a specialized retail store, part of a chain. He was especially proud of having been given responsibilities ordinarily entrusted to much older men. His fourth major achievement was starting his own business in the same line with a partner; they had two assistants.

Two other outstanding achievements he recalled were singing solo at the dances of a social club he belonged to (age 18); and becoming a good amateur photographer. "Surf fishing is what I like best, and what gives me most relaxation," he wrote. At no time in his life had he held office in a club or organization of any kind.

When asked why he wanted to be a sales manager, he said: "I'll make more money without having to travel in the field; I'll be home more with my family, and that will please my wife; we'll have more standing in our community." (Notice that "we.") Then he added, "I like selling at wholesale. I know the product, and I know that individual effort and selling ability are compensated accordingly. I feel certain I can produce outstanding results."

The achievements he had cited indicate virtually no concern with "administration" or "management." They show that his success values were associated solely with individual, personal effort. When this was made clear to him, he said ruefully, "My wife won't like it."

How to Identify A Man's Success Pattern

You are a manager, say, confronted with the problem of finding a good man for a position that has just opened up—the kind of man who can be relied upon to grow with the job. Or perhaps you are concerned about fostering the development of a promising subordinate. How do you go about uncovering the kind of facts that emerged in the cases I have just described?

The procedure itself is simple—but it involves one essential prerequisite: a sincere desire on your part to find the "best" in a man. (This, incidentally, is also a practical approach. It is sounder to select on the basis of a man's strengths and potential than attempt to weigh his good points against his faults. I have yet to meet anyone who knows how much, and what kind of strength, counterbalances how much, and what kind of weakness.)

If you wish to identify a man's Success Pattern, here's how to go about it: First, help him to get into the groove. Suggest that he tell you about something he has done during the past two or three years, something that he is proud of and gave him a feeling of accomplishment. This is an achievement or "success," regardless of whether it was associated with business, or what others thought about it.

You may encounter some reluctance

at the start. Some people say, "That would be too much like tooting my own horn," or, "Well, other people were involved in the thing, so I can't claim full credit for it." But with a little persuasion you will find that it is not too difficult to get a man to tell you about his happy and successful experiences. Further, this kind of request associates you in his mind with the pleasure he is recalling. Rapport is almost instantaneous.

Second, you want him to tell you more, to list a variety of achievements; so you should start him thinking in "range" terms. Ask him, "What gave you your first feeling of success?" Go on to explain that this was probably an experience in his early childhood, most likely when he was less than 10 years of age. He may have or profess to have some difficulty in remembering back "that far." Give him a little time. If he still can't recall anything, make a mental note to come back to it later (you have started the broad process of recollection) and go on to the next question.

Third, ask him about his favorite pastimes, hobbies, away-from-work activities. Try to ascertain which of them he has enjoyed for several years—at least three. Now ask him what he considers to be his "greatest" success or achievement. Then, dismissing his modesty, ask him to tell you about three or four more experiences which he personally feels were very close to his greatest achievement or success.

To insure that you have sufficient facts on which to base your decision, it may be necessary to ask him further questions about other of his early successes, his most-liked subjects in grade school, high school, and college, his military, family, or community achievements, and so on.

You'll soon find that the answers tend to corroborate one another—and you'll also find that if you obtain descriptions of six or more success experiences, certain factors will reveal themselves. You'll be able to decide that he is a man primarily concerned with words, figures, people, things, reasoning, art, mechanics, creativity, ideas, research, and so on.

Dynamic Success Factors

Your next step is to identify the man's primary or directional Dynamic Success Factors; these are the two, three, or four essential elements of his "greatest" achievement, which will also be repeated in his other important achievements.

Take Bill, for example, the attorney with business management and sales talents. In talking about his "greatest," he said his real success was that he managed to "sell" his superiors and persuade them to change their minds. Taken in conjunction with his earliest success, and his No. 2 success (establishing the business to raise funds for a religious order), we get, primarily, sales, words, and people, consumer products, services or ideas, combined with organizing talent.

These factors having been determined, it becomes clear not only which of his talents have long been practiced, but also where and how he tends to be motivated.

In other words, the Success Pattern approach to manpower evaluation indicates not a man's capacity (a limiting element), but his best direction for development. The kind of training to which Bill would respond quickest, and from which he would gain most, would cover such areas as communications, business economics, human relations. In these, he would develop fast. On the other hand, he is likely to respond slowly to training in, say, production controls, time and motion study, and so on. This is not to say that he would be unable to grasp these subjects. But his Success Pattern indicates that comparatively little would be gained by investing time training him in them.

What the Success Pattern Can Help to Achieve

In conclusion, let's summarize some of the possibilities that the Success Pattern theory and procedures open up.

The best a man *recognizes* he has done, is the best he tries to surpass. The Success Pattern procedure helps to clarify this recognition, and therefore stimulates a man to aim for top performance more of the time.

Aside from making it more possible to identify a man's "best," the procedure can also be used to help a man know himself, to set his own goals for progress, and to plan how to accelerate it. (Here, however, it should be pointed out that this calls for refined analysis and evaluation by a specially trained counselor.)

In general, as we have seen, the Success Pattern procedure can help in appraisal and selection, as well as in deciding what special assignments might best be given to whom. The procedure also makes it clear that no one can say when a man has reached his "highest" potential. We should not even think in such terms. Man is always bettering his previous best; this is growth, aliveness, development. The Success Pattern reveals not only the present level of a man's accumulated values (his qualities, not his history) but also the probable direction of his future development.

In short, looking for a man's best brings us one stage nearer the universal human goal—"the pot of gold" at the end of the rainbow. This is happiness, the opportunity to do the things we enjoy (and do well), and otherwise to express the best that is in us. If this sounds on a somewhat too-high aspirational plane, perhaps the words of Thomas F. Patton, president of Republic Steel, may strike a more realistic note: "Life in tomorrow's world will demand the maximum use of human skills, intelligence, and judgment. Even today the frontiers are not of forests and rivers, but of concepts and technologies. The bonanzas will be found not in gold fields, but in the human mind."

Is creative achievement born of some mysterious and rare combination of qualities—or do we all possess creative powers that can be unleashed simply by applying the right techniques?

What Makes a Man Creative?

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NEARLY ALL OF US, asserts Alex Osborn, the originator of brainstorming, "are gifted with creative talent" —a statement that seems to have led a lot of people to suppose that creative achievement is within the power of practically anybody. Admittedly, Mr. Osborn himself has not been so naïve as to confuse creative talent with creative drive. Nevertheless, the enthusiasm with which industry is now pursuing its brainstorming sessions seems to indicate a fairly widespread faith in the existence of a vast reservoir of human creativity waiting only to be tapped.

Do current investigations into the nature and workings of the creative process bear out this notion? Have they uncovered anything that might indicate that the capacity for genuinely creative performance—traditionally regarded as the rarest of all human attributes—is not necessarily limited to a comparative handful of men in any one generation?

At the University of Texas and the University of Chicago, we have carried out over the past decade a series of projective tests on a number of engineers who have already demonstrated outstandingly original inventiveness of a high order. This group includes men who hold basic patents on certain major advances in ordnance and electronic devices; a man who has invented and now manufactures radically new kinds of food processing machinery; another who is reputed to be a "genius" at designing new machine tools; and so on. In some cases, we were also able to obtain brief, but illuminating, histories of the man's formative years. Our findings may perhaps serve as a point of departure for identifying some aspects of motivation and personality bearing on creative activity.

With these particular men, at least, creativity is no accident. In every case, the man shows a highly energetic, distinct drive *to be creative.*

NOTE. This article has been adapted from a paper delivered as part of a recent symposium on creativity held in Austin, Texas, under the auspices of the Southwestern Psychological Association.

That is to say, he actively tries to find a solution to problems in his field that unmistakably bear an original stamp —one that is uniquely his own. In this respect, he *wants* to be different from all other men; he wants to furnish dramatic proof that *his* ideas are superior to all previous ones.

(This same urgent desire to be unique also typified a group of highly original research chemists whom we studied some years ago, using the Thematic Apperception Test. I have also encountered it in the two or three artists and writers I have come to know through psychotherapy.)

A Recurring Pattern

In the case of the engineers, where we were able to trace this drive back to its origin we uncovered a recurring pattern of development. During boyhood and youth, the future engineer felt unwelcomely dominated. Whether conscious of it or not, he developed the conviction that he had to fight very hard to "be himself," or else risk surrender of his personal identity. For example, in several instances, the boy was repeatedly browbeaten by a father who clearly felt unsure of himself and attempted to disprove his nagging self-doubts by demonstrating his superiority over his son. In one instance, the father was in the same field of engineering that the son ultimately (and deliberately) entered. When our engineer was 11, his father began posing difficult engineering problems as a contest between himself and his boy, registering condescending triumph each time he beat him, as he naturally did every time for many years. Needless to say, the son developed an intense hatred for his father, although he continued to admire his prowess and wanted passionately to equal it. It is worth noting that instead of cracking under this extreme pressure, this boy successfully kept on fighting until eventually he far outdid his father in his own field.

Such overt domination, albeit of an uneasy kind, was evident in several cases; in others it could not be so clearly identified, either because the family history was lacking or because the parental threats to developing independence took a more subtle form. In every case, however, these creative engineers manifested a life-long drive to achieve a successful personal identity distinctively different from that of their parents or other authority figures. (Why they were led to seek this goal by way of engineering, instead of, say, writing, art, or social reform is another question—and a highly pertinent subject for inquiry in itself. But this aspect of the creative process is beyond the scope of this article.)

From our study of these engineers we learned, then, that this group of outstandingly creative men privately felt an intense, almost an insatiable, need to prove themselves different, original, and unique. Nor was this need manifested only in their professional work. It was a basic personality trait that pervaded all their activities.

This characteristic does not, by it-

self, account for their record of creative performance, however. Rebels against orthodoxy are equally to be found among the ranks of criminals, hoboes, and other social misfits. Such men rarely demonstrate any useful kind of creative achievement. What impelled our engineers to harness their rebellious spirits to constructive ends? What distinguishes irresponsible contrariness from "divine discontent"?

Our findings show that at an early age these creative engineers accepted the credo that each man is responsible for earning his own way through life, whatever that way may be. Outgrowing the "something for nothing" expectations of infancy, they discovered the deep, intrinsic satisfaction of using their own powers to cope with the world about them. In short, in the matter of self-sufficiency and individual responsibility, they developed what is commonly called "good character." They also developed a set of ego functions sufficiently well organized to enable them to achieve highly accurate, perceptive insights into the nature and the possible permutations of complex physical objects and processes. (Perhaps it should be added that their judgment in other branches of human affairs has not always been so felicitous.)

The proverbial definitions of genius—"an infinite capacity for taking pains," "99 per cent perspiration," and so on—are also borne out by our observations of these men. All of them show an unusual degree of persistence when they are on the track of a technical problem that captures their attention. Some stick grimly to the trail, literally on a round-the-clock schedule; others may drop the problem temporarily, only to pick it up again later. Without exception, however, they manifest an unusual drive to keep on working at a problem until a successful solution has been found. This seems to be an autonomous, intrinsic, motivating urge, of a kind that cannot be summoned up by the desires, or even orders, of other people.

The Freer Internal Flow

Further, these creative engineers possess an over-all personality system in which the boundaries between conscious and unconscious seem to be more permeable than in the comparatively "well integrated" run of human beings. Less engagingly expressive of unconscious imagery than Lewis Carroll, though perhaps more sane, they are nonetheless able to allow affect, ideas, and images to well up from the unconscious and express themselves directly. This lends an extra charge of intensity to their undertakings and a striking vitality of purpose that can, in fact, be uncomfortable for others. Perhaps it is a misnomer to say they "allow" this to happen. Often enough, what emerges is neither socially pleasant nor professionally useful. They are not entirely able to control what comes out. (In this respect, they resemble the popular stereotype of the creative person as a maladjusted, temperamental egotist who has to be "put up

with" for the sake of his talents.) This freer-than-average internal flow of thoughts may well help to explain, however, the superiority of their mental prowess in their professional pursuits. Hampered neither by the conservative pressure of accepted conventions nor by the stifling influence of a too-efficient unconscious "censor," they are probably free to associate a more diverse range of ideas and objects in the course of their thinking. (Though this possibility has not been explored, it could be measured with some precision.) Certainly, their positive urge to differ with "constituted authority" enables them to feel free to explore new paths which the average, conventional engineer might feel that no "sane" man would consider.

Finally, we may note that the intelligence of all these men is in the high superior range, or better. Not all are "geniuses," however, by I.Q. standards. The average I.Q. of the group is somewhere around 135.

These findings are presented merely as starting points for thinking about the aspects of motivation and personality which may bear on creativity. They should not be regarded as typical of the creative mentality generally. It is almost certain that if other groups of creative people were similarly studied, other factors and even quite different patterns would emerge.

While much more research is needed before the "workings" of the creative individual are clearly understood, we can deduce some characteristics of the creative personality from the requirements that must be met in order that a performance can be called truly creative. To begin with, it must constitute an entirely new answer to the problem at issue—one that is signally different from all previous answers. Hence, the creative person must be, at the very least, the kind of man who is willing to give up old ways of thought, and is able to do so without any inhibiting feelings of anxiety, shame, or guilt about departing from traditional paths. This may not sound like a particularly noteworthy characteristic. Actually, however, most people are incapable of any such reaction at all.

The Solution Must Work

Second, to be effective, the proposed solution must be factually relevant and applicable to the situation at hand. Now, the world is not exactly overflowing with people who are capable of recognizing and encompassing all the pertinent factors in a problem, let alone reorganizing them mentally in a purposeful, orderly way. Therefore, one boundary of creativity is that point beyond which the person is unable to recognize or usefully think about the various, complexly interacting elements of a problem. (Where the problem is mainly intellectual, rather than esthetic, this would appear to require quite a high order of intellectual capacity.)

Originality and uniqueness, therefore, are not the sole criteria of creative performance: the answer must

"work." Thus, to be genuinely creative, at least in the particular field of his endeavor, the person must be reasonably rational and objective. While he can be a crackpot in other respects, he must possess ego functions that correctly recognize and interpret the realities in his chosen field.

Perhaps because, over the millennia, most of the "easy" answers have already been found, in most fields it takes long, hard effort even to know enough to be able to formulate the problems, let alone solve them. At all events, it is a truism that creative activity requires an unusual amount of sustained, disciplined effort. (Practically every professional writer, "creative" or no, is a vociferous witness to this fact.) We may reasonably assume, therefore, that, aside from his other qualities, the creative person must be one who is strongly motivated to withstand boredom, fatigue, and all other forms of frustration. He must be a man who can and does exert active, firm self-discipline in his field of interest, even though he fails to manifest this quality in any other aspect of his life. Poets, artists, and composers may be notoriously irresponsible and undisciplined in their private behavior, but their works bear witness to the tenacity with which they pursued their chosen craft. No one who is "Bohemian" about his profession is likely to achieve much genuinely creative performance. Creative work takes too much hard, sustained effort to bestow its rewards on the idler.

Finally, it would seem that, to be creative, a person must possess all these characteristics combined into one unified pattern. Originality without self-discipline, discipline without perceptiveness, objectivity without a tolerance for originality—none of these partial combinations would seem to suffice. Even without taking into account the many other factors, unnamed here, which are probably no less essential to creative performance, it begins to be clear why truly creative work is so rare.

Comparatively few people in the world seem really capable of tolerating new and different modes of thought or action with any comfort. Of this minority, not many possess both widely perceptive and rational judgment; and of these few, only a very few in turn have the strong inner urge to work hard enough and long enough to achieve creative mastery of their craft. In the light of these few factors alone it is evident that the supply of potentially creative people is restricted indeed.

Some Avenues for Research

Limited though our findings admittedly are, they suggest some pertinent questions for future research. For example, some creative people, we have found, are distinguished by a rebellious fight for independence. Is this characteristic a necessary spur to creativity in any form? Again, are the particular qualities manifested by our engineers found in creative performers in other fields? What other attitudes and desires possibly underlie the creative impulse? What

formative influences are most likely to produce the particular patterns of motivation and personality make-up that characterize the creative individual? What kind of educational milieu is best calculated to help realize a man's full creative potential? For that matter, what types of indoctrination are likely to inhibit him from the realization of his creative capacities?

Clearly, at present we have more questions than answers. Nevertheless, I believe that we are beginning to ask the right kind of questions. Further, as research tools, we now have the economies of sampling design and the powerful instruments of variance and factor analysis to guide us, once the pertinent variables have been identified and measured. In ascertaining and assessing these variables, we have the flexible, yet readily focused, penetrating, data-collecting methods of the depth interview and other projective measures, such as the Experience Record, and the Sentence Completion, TAT, and Rorschach tests. With these and other instruments yet to be designed, it seems reasonable to hope that we shall one day come closer to unlocking the mystery of creativity in all its varied forms.

Overtime—An Economic Weather Vane?

OVERTIME HOURS of factory production workers began to decline early in 1957—well ahead of any general recognition of an impending recession, according to a recent Bureau of Labor Statistics study. Though other indexes such as gross weekly hours and production worker employment also changed direction at the same time, they did not drop as sharply.

After a year of averaging about 2.8 hours, overtime hours in manufacturing began to fall early in 1957, as plant managers sought to adjust to changing conditions. By early 1958, the amount of overtime was well below 1956 levels, falling to 1.5 in April—a drop of 46 per cent from the 1956 average.

Since overtime hours are paid at premium rates, they are especially sensitive to a changing business climate, the BLS points out. Though definite conclusions cannot be drawn from figures covering only a period of little more than two years, the comparison suggests that changes in overtime patterns provide a significant clue to the general direction in which business is moving.

The art of coaching is something that some men will never learn and others do not need to be taught. But between these extremes we can count the vast majority of managers who can be trained to do a better job of counseling their subordinates.

Can Appraisal Counseling Be Taught?

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CONSIDERABLE disillusionment with appraisal counseling has been voiced within the past year or so. Maier, McGregor, Ohmann, Spates, and others have noted that telling a man his weaknesses and suggesting how to correct them does not always result in improvement.[1] On the contrary, it sometimes causes discouragement, resentment, and strained relations between the superior and his subordinate. While new approaches have been suggested, none has as yet gained widespread acceptance. Certainly, the company that has experienced one failure is understandably cautious about risking another.

As a general contribution to the problem, it is the purpose of this article to raise and answer two questions: Are good coaches born, rather than made? Is it a waste of time and money to try to train managers to conduct appraisal interviews at all?

Although there is some truth in the assertion that coaches are born, not made, this is not the whole truth. Admittedly, it is doubtful whether any amount of training can make good coaches out of men who are arrogant, intolerant, inconsiderate, and insensitive to anyone's feelings but their own. Such men are curmudgeons and curmudgeons they will remain. Again, at the other extreme, we have men who seem to sense almost instinctively the feelings and motivations of others, anticipating their responses and handling them with ease and assurance.

[1] See, for example, N. R. F. Maier, "Three Types of Appraisal Interview," PERSONNEL, March-April, 1958, pp. 27-40; D. M. McGregor, "An Uneasy Look at Performance Appraisal," *Harvard Business Review*, May-June, 1957, pp. 89-94; O. A. Ohmann, "Executive Appraisal and Counseling," *Michigan Business Review*, November, 1957, pp. 18-25; and T. G. Spates, "What's Wrong with 'Executive Development'?" THE MANAGEMENT REVIEW, December, 1956, pp. 1073-1080.

Executives of this type do not have to be taught how to coach or counsel their subordinates.

Most managers, however, do not fall into either of these categories. The vast majority have some sensitivity to the feelings of others, some perception of how their subordinates react, and some skill in getting their men to exert effort in a desired direction. This kind of sensitivity, perception, and skill can be developed, and good training can help to develop it.

The Desire to Learn

We may also assume that most managers possess the minimum level of aptitude required to learn any new skill (if they did not possess this, they would not be managers for very long). However, when it comes to that equally essential condition of the learning process—the desire to learn—we are on less certain ground. Unfortunately, formal education often includes a good deal of pointless busywork; as for industrial training programs how many have produced the results so hopefully predicted of them? It is not surprising that, with this past history in mind, a busy executive should resent the idea of "going back to school."

Little is known about how to motivate managers to seek training, if they have no faith in it. But the fact that many managers have enrolled in management courses of all kinds suggests that the motivation is already present in a large number. Experimental training in a new area might well begin with those who are most eager to learn. When we have developed effective methods for teaching *them,* we may find it easier to interest their more skeptical colleagues.

What can average managers, with average abilities and the desire to learn, be taught about appraisal coaching? The first, simplest, and most important thing to teach any prospective coach is to listen. The worst fault of most beginners is their eagerness to give advice. The manager who wants to learn can be taught to talk less and listen more; to ask, "What do *you* think?" before saying, "This is what *I* think." This one simple technique can prevent many of the flagrant blunders that managers often make when they act on their own assumptions instead of asking questions first.

Why should a manager risk demoralizing or antagonizing a conscientious employee by telling him his weaknesses if he can get the employee to tell them to him? Some men are well aware of their limitations, are not unwilling to admit them, and may be already trying to correct them. In fact, a simple invitation to a man to appraise himself will sometimes produce a better appraisal than any his superiors could make.

A second technique of coaching that can be learned is reflecting the other person's remarks and feelings by summarizing and restating them. Some managers can learn to use this technique more skillfully than others, and seem to be more perceptive in detecting the feelings that lie behind a man's words. But even the less sensitive manager can learn to use such phrases as, "So it seems to you that . . ." or

"Now, let's see. You feel that . . ." Similarly, confronted by a man obviously hot under the collar, he can learn to say, "This burns you up," or "You're pretty angry about this," or "You have some pretty strong feelings on this subject." Or if the subordinate is visibly worried and says so, the prospective coach can learn to counter with such responses as "You're quite concerned about this," or "You just don't know what to do," or "If there were only something you could do about it, you'd feel a lot better."

Though it may appear pointless to tell a man what he already knows and has just said, this technique has many advantages. It insures better understanding by giving the subordinate a chance to corrrect his superior if what he wants to say is not coming through. It lets him know that his boss is listening and trying to understand his thoughts and feelings. Moreover, it gives him the assurance that his superior considers him *important enough to listen to,* and is really interested in *him*. Thus he is encouraged to go on talking, and the more he talks, the more both he and the superior are likely to learn. In the process, the coach gains new insight into the situation, while the employee may discover his own solution to his problem.

Psychologists have observed that strong feelings always find expression in one direction or another. Thus, if a man is so mad that he wants to sock his boss in the jaw, but has to restrain himself, he is likely to take it out on the men below him. If he can express his feelings in words, he may feel less need to vent them in deeds and be more ready to consider a more constructive course of action.

Moreover, as industrial relations directors know, many grievances result primarily from some affront to a man's self-esteem. Listening to an employee and encouraging him to "get it out of his system" will often serve to repair his wounded ego and reassure him of his own importance.

Sometimes the coach does not even have to agree, much less take any action. The mere fact that he listens and tries to understand may help the employee to solve his problem for himself.

Of course the method does not always work this way. But when it does not, all the other techniques of coaching and of administrative action are still available. In fact, they can be employed more effectively because the superior has gained a better understanding of the problem.

Awareness of Different Value Patterns

Coaching, like selling, derives much of its effectiveness from the superior's awareness of the needs, desires, motivations, and values of the subordinate whom he is trying to help. You can dangle a carrot in front of a donkey's nose, but if he does not like carrots, he will not budge. It may not occur to a hard-driving, ambitious manager that some people would rather have more leisure than more money. Similarly, an aggressive, self-confident superior may not realize how much a word of praise or criticism can do to

lift up or completely crush a sensitive subordinate. But these are handicaps that training can also remedy. Most managers can learn to distinguish between their own value patterns and those of their subordinates'. They can be taught to recognize that people differ in their motivations and place different values on money, leisure, success, status, approval, promotion, and so forth.

Although no one can ever completely understand the feelings of another person, a prospective coach can learn to recognize that differences in values do exist. He can be taught to look for them, and to encourage his subordinates to discuss their own values. He can learn to ask a man how he feels about such things, what he most wants out of his job, where he hopes to be five or 10 years hence.

The more a manager knows about his subordinates' values the less likely will he be to assume that they will react in the same way that he would. Hence, he will be better equipped to coach them effectively.

In summary, managers can be taught to listen, to reflect, and to consider value patterns. While there are other techniques, these three illustrate the point that managers can be taught with reasonable hope of improving their coaching effectiveness.

What is the best way to teach these techniques to managers? Lectures and readings may help, and a few eager beavers may need only to be told. However, Fleishman's evaluations of training programs in human relations indicate that most managers need something more than knowledge to produce action.[2]

Probably the most powerful teaching device in industry is the example of the immediate superior. If the president of the company is a good coach, his immediate subordinates will learn by imitating him. To the extent that they learn, their subordinates will learn from them. But, if the man at the top is not a good coach, it will be hard for the training director to counteract his influence.

Also, it may be added that, while the example of the boss who is a good coach may have considerable influence, this does not automatically produce good coaches all the way down the line. Thus, learning by example may be reinforced and supported by an effective training program.

In planning such programs, industry has much to learn from the universities, who have been training counselors for nearly 50 years. Their experience has shown that coaching, like swimming, cannot be taught entirely out of a book. It is now generally accepted that the best way to learn coaching is by practice under supervision, using the techniques of role playing, tape recording, analysis, and discussion.

A WORKSHOP PROGRAM

How can a company provide this type of learning experience for its managers? We shall outline a typical program which could be modified ac-

[2] E. A. Fleishman, "Leadership Climate, Human Relations Training, and Supervisory Behavior," *Personnel Psychology*, Summer, 1953, pp. 205-222.

cording to particular company needs.

Training sessions for 20 executives may be held one hour a week for 20 weeks, two hours a week for 10 weeks, or four hours a day for five days, with each hour divided into two periods of 30 minutes.

During the first half of the first hour, Mr. A interviews Mr. B. Mr. A role plays himself doing any kind of interview he chooses, with one of his subordinates. Mr. A describes the situation and the subordinate to Mr. B, who role plays the subordinate, responding in the interview as he thinks the subordinate would respond.

The other 18 members of the group observe the interview. Each is assigned a different aspect to observe, and given a set of questions as a guide. Here are some sample guide questions:

Mr. C

Did these two agree on any future action?
On anything else?
Was the agreement genuine?
Was it a comfortable agreement for both?
Was it a compromise acceptable to both?
Was it imposed by one on the other?
Was it resented by either?
Will it strengthen their future relationship?
Will it be a source of future irritation?

Mr. D

Did the superior offer any appraisal of the subordinate?
If so, was the appraisal well documented?
Was it fair? Did it reflect the values of the superior? Of the subordinate?
Was it presented at the best time?
Was the subordinate ready for it?
How did the subordinate react to it?
Did the subordinate have sufficient opportunity to appraise himself before the superior appraised the subordinate?

Mr. E

Who did most of the talking? The superior? Or the subordinate?
Try to keep an approximate record of the number of seconds and minutes that each one speaks.
Would you have talked more, or less?

Mr. F

Did the subordinate express himself freely?
Did he seem to feel free to do so? Or was he afraid to do so?
If you were the subordinate, would you have felt free to do so in this interview? Why? Why not?
Did the superior interrupt or cut off the subordinate at any time?
Was this desirable or not?

Mr. G

Did the superior really listen?
Did he really try to understand what the subordinate said, and how the subordinate felt?
Or was he impatiently waiting for the subordinate to stop talking so the superior could express himself?
Did the subordinate sense the superior's feelings and respond to them better than the superior sensed and responded to the surbordinate's feelings?

Mr. H

Did the subordinate feel any hostility?
Did he reveal it?
Did the superior detect it?
How did the superior react to it?

The interview is not permitted to run longer than half an hour; the second half is given over to a group discussion focusing on these two questions:

What did the interviewer do that you liked?

What would you have done differently?

Since people who feel defensive resist criticism, the precise wording of these questions is important. It is desirable that the spirit of the group be one of mutual helpfulness, rather than one of attack and defense. Each person should feel secure enough to consider the ideas of others, without feeling that his status in the group will suffer if he accepts a suggestion.

There should be a frank recognition of the fact that no one knows all the answers, or can say with finality that any procedure is absolutely right or wrong. It should be stressed that interviewing is still an art and that there is room for differences of opinion.

The purpose is not to teach every interviewer a mechanical formula to be used in every interview. Rather, it is to make him more aware of the different ways of handling various situations, so that he can try the procedures which appeal to him and discover which ones produce the best results in his own interviews. In this way he will gradually develop a style of interviewing that is appropriate to his own personality—natural, comfortable, and effective for *him* with *his* subordinates in *his* setting.

Thus, in discussing a practice interview, the observers are asked to say, "I think I would have done it this way," rather than, "That was wrong," or "He should have done this." Instead of passing judgment, the group members are trying to help one another to perceive the different ways of conducting interviews, and to become more aware of how different people react to them.

The interviewer is urged not to feel any more defensive than he can help, and, moreover, not to defend what he did. He is invited to listen to the comments on his interview, accept those which appeal to him, and simply ignore the others. He is asked to open the discussion period himself by answering the question, "If you had this interview to do over again, would you do anything differently?"

Emphasis on Mutual Help

The observers may differ with one another as much as they like, but in the spirit of comparing ideas and learning, rather than in a competitive struggle for status. However, it does not follow that every discussion session should be a model of sweetness and light. Sharp challenges are likely to arise and feelings may become ruffled. Nevertheless, the emphasis should be on mutual helpfulness rather than internecine strife.

During the last five or 10 minutes of the discussion period, the group leader summarizes the discussion and adds his own comments. He presents the principles and techniques of coaching that have been illustrated by the practice interviews.

Thus, the first hour consists of a 30-minute interview, and 30 minutes of discussion including a summary. Both the interview and the discussion are recorded on tape, so that the interviewer may play them back as often as he wishes. Frequently, a person who listens to himself gains new awareness of what he has been doing and of how he wants to change it.

In the subsequent training sessions, assignments are rotated until every member has participated in two interviews, once as the interviewer and once as the subordinate. During the second hour Mr. B becomes the interviewer and Mr. C role plays Mr. B's subordinate; during the third hour Mr. C becomes the interviewer and Mr. D role plays the subordinate, and so on.

The observation assignments are also rotated, so that at the end of 20 interviews, each observer has concentrated on 18 different aspects of the interview. Few people can go through this experience without becoming more aware of some of the elements that can make or break an interview. Nearly everyone finds something in his own technique that he wants to change.

A learning experience of this kind can be provided by any company for its own managers in one of three ways. The company can set up its own staff workshop, hire a university or private training consultant to set it up and conduct it, or send its managers to a workshop serving several companies.

The minimum essentials are that every manager be given a chance to practice interviewing, to hear himself on tape, and to learn how others react to what he does. No interviewing manual, counseling textbook, or lecture-discussion program in human relations can equal the reality of the experience provided by the workshop approach described here.

IRRA Members' Views on Labor Legislation

OF 392 MEMBERS of the Industrial Relations Research Association whose views on pending labor legislation were recently queried by Loyola University, Chicago, the majority were clearly in favor of a moderate legislation to curb the malpractices of irresponsible union leaders, but were equally opposed to any measures that might stifle legitimate unionism.

Most of the respondents supported such Kennedy-Ives provisions as regulation of organizational picketing, prohibition of bribery of employees by employers to discourage self-organization, regulation of union elections, publication of union treasury reports, and regulation of labor consultants. The group also expressed approval of the supervision of union welfare and pension plans proposed by the Douglas bill.

On the other hand, 61 per cent were opposed to an extension of anti-trust laws to unions, and 74 per cent disapproved of the enactment of a national right-to-work law.

The sample was composed of university professors, labor consultants, representatives of management and unions, and public administration officials. The survey report noted that considering the highly controversial nature of the issues covered in the questionnaire, the various occupational groups showed a remarkable degree of agreement.

Professionally conducted surveys of what turnover is costing a particular company often leave its management gasping in disbelief. Here is an itemized list of the costs that turnover actually entails. Add it up for yourself.

Calculating the Cost of Labor Turnover

FREDERICK J. GAUDET

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ASK ANY MEMBER of top management how much he thinks turnover is costing the company in actual dollars and cents—and if his reply does not fall ludicrously short of the true figure, he will be a rare bird indeed. Few executives, in fact, have any inkling how costly turnover really is. Fewer still have paused to consider all the factors that must be taken into account in calculating a company's turnover expenditures.

Experts in this field have, for the most part, confined their studies to those occupations where turnover costs are obviously high. While such an approach is not without its uses, it is no substitute for systematic study of the individual company's particular turnover situation. Moreover, it should be added, the company that plans to undertake a survey of this kind should be prepared to carry it out on a company-wide, or at all events plant-wide, basis. Sometimes, the greatest over-all savings can be made in departments that are generally ignored in computing turnover costs because their wage rates are low.

The initial step is, of course, to determine the *rate* of turnover in the company's various departments. Since I have described the various methods of calculating turnover rates in a previous article,[1] I shall not touch on this aspect of the problem here. This article will discuss the various factors to be taken into account in calculating turnover costs, after the turnover rate has been determined. It will also point out a number of errors that are often made in such calculations and, by way of example, indicate some typical costs for certain occupations.[2]

Basically, turnover costs can be categorized under six broad heads: recruitment, selection and hiring, indoctrination and job training, on-the-job

[1] See F. J. Gaudet, "What Top Management Doesn't Know About Turnover," PERSONNEL, March-April, 1958, pp. 54-59.

[2] The various costs quoted in this article are from the author's files.

costs, separation, and intangibles. We shall consider each of these areas in some detail.

Recruitment

Recruitment costs include such items as:

- ► Advertising in newspapers, technical journals, and on radio and television.
- ► Employment agency fees.
- ► Time spent by company representatives at educational institutions, conventions, conferences, etc.
- ► Bonuses to employees who refer successful candidates.
- ► Brochures, booklets, exhibits, etc.
- ► Public relations activities by members of the personnel staff (sometimes called "keeping the pot warm").

Most of these costs are relatively easy to calculate since recruitment activities are frequently directed to one particular class of employees. Thus, the costs for a given period—say, one year—can be divided by the number of employees hired. The costs of course will vary with the level of the job and the scarcity of qualified personnel for the occupation in question. Some typical recruitment costs for each employee hired are: journeyman machinists (newspaper advertising), $800; shipping room packers (newspaper advertising), $12; experienced electronic engineers (newspaper advertising), $2,300; campus recruiting for engineering graduates, $1,400 to $2,800.

One common error in calculating recruitment costs is failing to include the recruiter's fringe benefits, such as vacations, hospitalization, and so forth —which frequently amount to 25 per cent or more of his salary. Another frequent mistake is to charge the single copy price of the recruiting brochure against each man hired instead of dividing the total cost of all the brochures used by the total number hired. Thus, the cost of the brochure may be listed as $1, whereas the correct figure is actually $80 or $100.

For example, in an analysis of engineering turnover costs a government agency listed the expense of a recruiting leaflet as 14 cents. This leaflet was distributed to post offices, military installations, and public employment offices throughout the country, as well as to congressmen for circulation to their constituents, and a large nongovernmental mailing list. The number of engineers recruited for each thousand leaflets distributed was undoubtedly extremely small. It is safe to say that the cost of the leaflets for each engineer hired was much higher than the 14 cents calculated by the agency.

Selection and Hiring

A wide range of activities must be considered in calculating selection and hiring costs. For example:

Letters of application. In selecting higher-level personnel, screening application letters is usually an expensive item. It takes time to read, evaluate, and select the applicants who should be given further consideration. In some companies, this screening is done by one personnel staff member; in others, three or four members of management may be brought in. In addition, the cost of answering the letters of promising applicants must be calculated.

Typical costs here range from $18 for a technician to $52 for an engineer and $84 for a plant personnel manager.

Application blanks. Far too many companies consider this cost to be only the printing of the blank. More important is the cost of the time required to check whether the blanks have been completely and correctly filled out. Where the applicants are illiterate or semi-illiterate, this cost may run as high as a dollar or so for each one. But even in hiring college graduates, many companies find it necessary to have a clerk check over the blank before it goes to the interviewer.

Though the cost per applicant is negligible, where the ratio of the number of hires to the number of applicants is low, say for example, one in 30 for supervisory trainees, or one in 50 for salesmen, the rate per man hired becomes significant. Typical costs here are $4 for a packer, $30 for engineers in a utility company, and $14 for a wage practices associate.

Interviews. While it is relatively easy to calculate interviewing costs, here again the interviewer's fringe benefits are often overlooked. Two other common errors should also be noted. One is calculating the cost per interview by taking the average duration of all interviews. In the first place, the interview itself is not the only time factor involved—most interviewers study the application blank before actually seeing the prospective employee. More important is the fact that, as a rule, interviews are not evenly spaced throughout the week. More job seekers come to employment offices on Monday, Tuesday, and Wednesday mornings than throughout the rest of the week; thus, there are times when the interviewers are not busy, though their salaries go right on. A sounder method of calculating the cost of an interview is to divide the interviewer's weekly salary, with fringe benefits added, by the number of interviews he conducted during that week. If the employment interviewer also does follow-up or exit interviews, the time devoted to these activities can easily be deducted.

The other mistake often made is failing to multiply the cost per interview by the number of applicants seen for one man hired.

Some typical interviewing costs are: $10 to $15 for laborers (or even less if no real selection is done); $25 for a wage practices associate; $45 for a shipping room packer; and $125 for a sales engineer.

The cost of both personnel and line interviews will vary with the level of the position to be filled. In general, line managers tend to vary the length of their interviews with the occupational level of the applicants even more than personnel interviewers do.

It may be argued that the cost of a line manager's interviewing time should not be included because he is already on the payroll and the company does not pay him any more to interview applicants. However, interviewing applicants takes time that the manager would ordinarily devote to his regular activities of planning, scheduling, supervising, and so forth.

To overlook this is tantamount to assuming that if he were not interviewing applicants he would be doing nothing at all.

Typical line interviewing costs may range from $3 to $5 for unskilled workers to many hundreds of dollars for technical or managerial candidates who may be seen by several management people. Examples are: $15 for a shipping room packer; $75 for a wage practices associate. In one case that recently came to my attention, a company spent $3,500 on interviews for a plant personnel manager's job—two vice presidents traveled by train from one coast to the other and spent four days interviewing and entertaining candidates.

Medical examinations. The cost of medical examinations is usually one of the easiest to obtain. Typical costs are: $7.08 for an unskilled or semi-skilled laborer; $8 for a shipping department packer; $75 for a wage practices associate; $150 for an engineer.

References. Here we must include the cost of obtaining information about an applicant by telephone or letter, evaluating it, and in many cases comparing the references of several candidates for one job.

The cost of obtaining information by telephone is principally the employment manager's time. Writing for references usually costs around $2 per letter. Thus, if three candidates are being considered and three letters are sent out on each, the cost would be $18 for one hire.

Evaluating the information, particularly if done by both line and personnel people, will of course run much higher.

Typical reference costs are: $15 for a wage practices associate (only one candidate); $15 for a shipping room packer; and $35 for a manufacturing foreman.

Psychological testing. If psychological tests are administered by a plant psychologist, the average time per test should not be used. Instead, as in computing the personnel interviewer's time, the psychologist's weekly salary, with fringe benefits added, should be divided by the number of tests he gives during the week.

The costs will range from $2 or $3 to $200 per applicant. Typical costs with management personnel are: $240 for a foreman; $400 for a superintendent; and $1,600 for a sales manager.

Other recruiting costs. In addition to these major items there are many others which may need to be calculated by some companies. They include security and credit investigation ($15 to $200); company badge, including photograph ($3 to $35); putting a man "on the books" ($5 to $40); safety glasses ($3); applicant's travel expenses, if reimbursed; and overhead charges of the personnel office.

Indoctrination and Training Costs

Many companies do not include indoctrination and training costs as an item of labor turnover. When company executives say they have no indoctrination program, what they generally mean is that there is no *formal* program. Indoctrination takes place whether management is aware of it or

not. For example, in a company whose management had stated flatly that there was no indoctrination system at all, I had the opportunity to observe a new pipe-fitter's helper on his first day on the job from the time he entered the personnel office waiting room until he met the superintendent, his foreman, and finally the pipe-fitter he was going to work with. It was at this point that I discovered the core of the company's indoctrination program. After the foreman had introduced the pipe-fitter to his new helper and departed, Al, the pipe-fitter, pulled out cigarettes and both men sat down on a large pipe for a little chat. Al asked the new man if he had ever worked in a pipe-fitting shop. The helper said he had not. "Well, don't worry," Al told him, "we don't work too hard around here."

So, despite management's assurances to the contrary, this company did have an indoctrination program after all. It may not have been the kind any company would welcome, but it was an indoctrination program nevertheless.

Formal programs generally start off with a half or full day of training sessions. In the larger companies these are usually conducted by the training department and may include a review of company personnel policies, information about company products, movies, maps, or a guided plant tour. Many companies have expanded such programs to include a briefing on the names and appearance of the tools and material used on the job. After the training sessions, the new employee is introduced to his foreman. He may also be assigned to a senior employee who acts as his mentor for the first few days.

The costs here consist mainly of the wages of the senior employee, the trainer, and the overhead or space used for the training. Typical costs range from $10 to $50.

In many companies, the initial training is followed by further indoctrination by the foreman or section head. This may extend over a period of weeks.

Skill training for inexperienced workers may be conducted in a training or vestibule school, or on the job. In the former, the costs may range from $100 to several thousand dollars.

It is more difficult to calculate the cost of skill training, when this is conducted informally on the job. But just as calculating the cost of informal indoctrination frequently results in indirect benefits (such as pointing up the need for a formal program), so a study of informal skill training costs usually pays for itself. For example, a study of on-the-job training of semi-skilled assemblers, where the work demanded close tolerances, revealed spoilage costs of over $3,000. The excess spoilage was due largely to the fact that although the trainees were on a guaranteed minimum wage, they were encouraged to reach a speed level in order to get on piece rate. Changing the on-the-job training to a more formal program reduced the cost from $3,900 to $1,300.

An additional cost is the preparation of training material which may range

from a handful of booklets to a "five-foot shelf." The preparation and printing of these materials must be added to other training costs.

On-the-job Costs

The principal on-the-job costs which are increased by the entry of new employees are production and supervision, wastage and spoilage, machinery or tool maintenance and depreciation, accidents, inspection, and idle machinery.

The cost of these items will vary considerably according to the type of employee hired. In general, they are relatively high in the case of inexperienced workers. Since many of them have been challenged as not forming part of turnover costs, they call for some further comment.

Increased cost of productivity. It has been argued that production costs are not increased by turnover when employees are paid on a piece-rate basis. However, new employees generally start off with a minimum wage for a period which may last many weeks. Even if this is not the case, the production costs increase on a piece-work basis since overhead remains constant. When expensive machinery or other equipment is used, the difference between the cost per unit produced by the regular worker and that produced by the new worker can be high.

Increased cost of supervision. As with time spent by foremen in interviewing applicants, the extra time required to supervise new workers also increases the cost of supervision. Here again it may be argued that since the foreman is already on the payroll, this time should not be charged to labor turnover. However, this argument ignores the fact that the foreman has less time for his other functions. If he spends a considerable portion of his time in training new employees, his production costs usually go up for *all* the employees under his direction.

Increased maintenance or depreciation costs. Executives who are not experienced in actually handling machinery often fail to realize not only that maintenance costs are increased with new employees but also that machinery and tools depreciate more rapidly with new employees than with experienced ones. As a simple example, consider the shape a large truck would be in after being operated by a series of inexperienced drivers during the first year of its life.

Higher accident costs. These must also be taken into account. Since the accident rate is highest for inexperienced workers, the company with a high rate of turnover will have higher accident costs.

Higher inspection costs. Since new employees turn out work of lower quality than that of regular employees, turnover causes either an increase in inspection time or a decrease in the quality of inspection for the department generally.

Idle machinery, equipment, and space. These costs must be allowed for because an employee who leaves is seldom replaced immediately. If the equipment and space are expensive, and the turnover rate cost is high, this can be a considerable item.

These on-the-job costs may range from $50 for an experienced employee to several thousand for an inexperienced one.

Usually, separations cause an increase in on-the-job costs mentioned above. Production and supervision are particularly affected. In fact, if a popular employee is quitting or has been fired, not only does his production go down in the last week but that of his associates drops as well. Such familiar comments as, "Well, four more days to go. I don't know about you so-and-sos, but I sure am glad to be getting out of here," are only too likely to plant seeds of doubt in other workers' minds, with a consequent lowering of production and morale.

Among other separation costs that must be calculated are:

Exit interviews. In some companies, these are confined to a single interview in the personnel office; in others, the departing employee is interviewed by both line managers and personnel staff members. Depending on the number of interviews held, costs can range from $3 to $100. The clerical work involved in taking a man off the books is an additional expense which may run from $3 to $20.

Severance pay. These costs can easily be obtained from the accounting department. Since turnover is highest among employees with short service, this is usually an item of little consequence.

Increased unemployment insurance costs. These are not usually included in calculating the turnover cost of an individual employee. However, in states which have merit-rating systems for low turnover, they are usually included in plant or departmental turnover costs.

The intangible costs of turnover such as the loss of good will are most evident in the sales field. Often, a new man is unable to hold all his predecessor's customers. However, loss of good will may also follow from excessive turnover in production jobs where too high a rate may lower the quality of the product, thus causing sales to drop.

Perhaps an even more important intangible is the fact that turnover tends to breed more turnover. Take, for example, two plants in the same area competing for the same kind of labor. If one has a considerably higher rate of turnover than the other, it is likely to get a lower grade of job applicants. This in turn will increase its turnover even more.

It should be evident from this review of the numerous factors to be taken into account in calculating turnover costs that many published cost figures are highly misleading, to say the least. Among the nonsensical statements that come to my mind are a total turnover cost of $30 for unskilled labor, and of $40 for management personnel in a housing project. These may be extreme examples of the naivete of management about turnover generally. Nevertheless, it can safely be said that any company that embarks on a systematic study of its turnover costs —whether on a company, plant, or departmental basis—is likely to be appalled when all the figures are finally added up.

The administration of a research team poses different problems from those encountered in other departments of the company. Here is a procedure developed by one research operation that can, the authors believe, be adapted to the needs of other research fields.

Research Administration: The "Associate" Approach

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IT IS GENERALLY agreed that supervising research groups entails problems that are somewhat different from those normally encountered in the supervision of ordinary line operations. Aside from differences in the personality make-up of the researchers themselves, the research process (in contrast to the line operation) is highly unstructured, depending as it does upon the nature of the problem, the capabilities of those doing the work, and the characteristics and needs of those for whom the research is being done.

Because most business is handled according to predetermined specifications, the technical aspects of supervising line or production-type operations are confined largely either to the handling of problem or exceptional cases or to trouble shooting. In research work, however, each project is a new adventure. While the basic methodology and tools remain largely the same throughout any given field or discipline, the researcher does not know where his work on any particular project may take him. A considerable amount of planning is necessary, therefore, for projects of any size.

These conditions usually make great demands upon research supervisors, especially as regards the technical direction of work. As a result, research departments often require a higher supervisory ratio than do line operations. Unfortunately, this problem is compounded by the scarcity of managerial talent in the research field. Many of the most competent investigators lack the skills to become good super-

NOTE. The authors gratefully acknowledge the contributions of the technical staff of the Research Division of Prudential's Western Home Office in developing the approach described in this article.

Steps in a Typical Research Project and Functions of Superior, Researcher, and Associate

PROJECT PHASE	ASSIGNMENT OF FUNCTIONS
1. Preliminary investigation.	Researcher to whom the project has been assigned is responsible for collecting and assembling all the background material necessary for planning. At this stage, Associate serves in an advisory capacity only. Researcher's Superior provides the preliminary orientation, and is available for consultation as needed.
2. Experimental design.	Associate has joint responsibility* with Researcher. The latter is assumed to present all the background material needed for planning, other than general background information which the Associate might reasonably be expected to know. Associate is responsible not only for the preliminary design of the project but also for any subsequent changes which may be called for as a result of the research findings. Design is reviewed and approved by Superior.
3. Collection of data.	Researcher is solely responsible for this phase of the project.
4. Data processing.	The methodology of and general approach to data processing are the joint responsibilities of the Researcher and the Associate. Researcher is solely responsible for the actual data processing and accountable for any errors in calculation, whether made by himself or by clerical personnel.
5. Analysis of findings.	Joint responsibility of the Researcher and the Associate.
6. Conclusions and recommendations.	Associate serves in an advisory capacity only. Researcher's conclusions and recommendations are subject to final review and approval by Superior.
7. Write-up and presentation.	Associate serves in an advisory capacity. Presentation is finally reviewed and approved by Superior.

*Any error or oversight is as much a reflection on the Associate as on the Researcher.

visors, while others shun administrative responsibilities, preferring the comparative freedom of laboratory or project work.

To overcome this difficulty, some modifications of the conventional approach to research supervision may be desirable. This article will outline an approach developed in the Western Home Office of the Prudential Insurance Company as a means of stretching the available supply of research supervisors and, at the same time, of providing greater development opportunities for individual research workers.

In the typical research organization, a project is usually assigned to one particular investigator who has full responsibility for carrying it out. He develops plans and carries out the study under the direct supervision of his superior, to whom he turns for advice and review as the work pro-

gresses. Under the proposed approach, the researcher to whom the project is given is assigned an "associate," who shares responsibility for the project with him. While the researcher is still directly responsible to his superior, and still carries out the actual work entailed, he now has someone at or near his own level of competence to help him in the more difficult planning, analysis, and interpretation. This relieves the superior of much of the exhaustively detailed discussion so necessary for most research projects of any size.

To make such an arrangement feasible, it is necessary to break down the typical research project[1] into separate, successive steps. There is obviously no point in making the associate responsible for every detail of the project, since this would involve needless duplication of effort. On the other hand, if the associate is given only "advisory" duties, this tends to reduce his accountability for work done and takes the "teeth" out of the association. The functional breakdown we have evolved is shown in the accompanying chart. As will be seen, it aims at maximizing the associate's responsibilities and contributions, while minimizing superfluous detail and the overlapping of functions generally.

It should perhaps be made clear that the superior is available for consultation at any stage of the project. Naturally, the researcher will want to check major decisions with him before he embarks on some course of action that will obviously involve a great deal of time. For that matter, the superior will need progress reports from time to time, since he has the final responsibility for carrying out the project, besides having to schedule the work of his section as a whole.

Occasionally, the researcher and his associate will disagree about methodology or the interpretation of the study's findings. If the two do not see eye to eye at the stages where the associate serves in an advisory capacity only, the researcher can either decide to proceed in his own way or refer the problem to the superior. Where the associate has *joint* responsibility, however, the dispute *must* be referred to the superior for his decision, since the associate is equally as accountable as the researcher for poor judgment or errors of any kind.

Advantages of the Approach

Our experience with this approach seems to show that it possesses a number of advantages:

1. *Saves superior's time.* The innumerable decisions which any research project involves can be thrashed out beforehand by the researcher and the associate. This clarifies the picture for the superior in reviewing progress on the project, and at the same time enables him to supervise many more projects than he would otherwise be capable of handling.

2. *Trains new researchers more rapidly.* New researchers are involved in a variety of projects in a shorter time than would otherwise be possible.

[1] While not all research follows the outline suggested here, the work on most major projects can be satisfactorily described by the steps indicated.

3. *Extends accountability.* Since the responsibilities of the associate are clearly defined, he is more than casually involved in the study.

4. *Provides cross-fertilization of ideas.* The researcher-associate relationship throws investigators working on widely different projects into a close association where they can profitably share ideas.

5. *Prevents delay.* Should the researcher, for some reason or other, be unable to continue with the project, the associate is familiar enough with the details to carry it on without undue delay. Even if the researcher is only away on vacation, the associate is at least able to answer any important questions that may crop up in his absence.

6. *Points up fundamental differences in points of view.* These differences may lead to a greater appreciation of the study's limitations, or to a more constructive approach.

Some Disadvantages

On the other hand, it should be pointed out that this approach is not without some shortcomings:

1. *Slows progress on other projects.* The time spent by an investigator as an associate is time that must be spared from his duties as researcher on another project. However, much, if not most, of the time spent by the associate would have to be devoted to the project by the superior, thus limiting him in the number of projects he could profitably handle.

2. *Pressure of other work may intervene.* The associate may be unavailable for consultation because he is too hard pressed in his own work.

3. *Steps may have to be retraced.* If the associate is lost to the project, there will be a delay until the new associate has familiarized himself with all its ramifications. (Although work may be far enough along so that a new associate is not necessary or practical.)

Applicability

Under what circumstances can the approach outlined here be used? We believe that it is equally applicable (1) where the superior is thoroughly competent and experienced in the field under investigation and (2) where he is relatively unsophisticated in the field, but has been given administrative responsibility for the work.

In the first instance, the superior can isolate and evaluate the key technical aspects concerned, with only moderate involvement in the project itself. He can thus eliminate much of the time-consuming discussion essential to planning all details of the study.

On the other hand, where the superior is relatively untrained in the technical aspects of the work, the use of both a researcher and associate tends to give him more confidence in the work produced, since two researchers are "responsible," rather than just one.

To date, this approach has been used primarily for research in such fields as psychology, economics, and marketing. It is felt, however, that it can also be useful in any field of inquiry where the work processes can be categorized in a manner which permits its application.

The informal discussions that take place among researchers as a matter of course are extremely valuable and educational, and the approach suggested here should not in any way inhibit them. On the other hand, it does tend to reduce the time-wasting process of individually briefing a number of other researchers on all details of the project in order to obtain their advice and opinions. The associate is familiar with all its important aspects. Other researchers can be called upon to assist should the need arise.

It is not possible here to cover all the ramifications of adapting this approach to particular research fields. However, such factors as the size of the group, the levels of competence of the researchers, the diversity of disciplines represented, and the nature of the research, must all be considered.

It may be argued that, in fact, this approach is already being used informally in most research groups of any size. To the extent that researchers tend to consult with one another, and often pair up in their work, this is undoubtedly true. Actually, the Research Director who is completely satisfied with the way his department is operating now should avoid making changes of the kind suggested here. There is no point in tinkering with a smooth-running machine. However, for the administrator who feels the need of greater controls, particularly where his department is short of competent technical supervisors, or where it has a heavy complement of new personnel, or both, the "associate" approach may be a fruitful one.

Foreign Students—An Overseas Recruiting Source

MORE THAN one third of the 43,391 foreign students in the United States during 1957-1958 are interested in working for an overseas branch of an American corporation after they graduate, reports the Institute of International Education. Of those who said they would like to work for an American company, 4,881 are engineering students.

Other fields of study offered by the "would like" group are social sciences, physical and natural sciences, and the humanities (more than 2,000 in each). Just over 1,600 students of business administration, and somewhat less than 1,000 each in medical sciences, education, and agriculture are also interested in hearing from a prospective American employer.

The interested group comes from all over the map. China and Canada head the list, with about 1,200 each. Runners-up are India and Korea (1,152 and 1,007 respectively). Sizable blocs of potential recruits are also available from the Philippines, Iran, Japan, Greece, and Cuba.

University researchers have been exploring the world of work from many different angles over the past decade. Among the somewhat bewildering proliferation of studies in this area, which are the most significant from the viewpoint of the practicing manager?

I. Some Significant Projects in Recent Management Research

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OF ALL PEOPLE, the social scientists who are themselves engaged in the study of people at work should be best qualified to single out the significant research projects—either completed or still in progress—in this area. Yet, in a recent AMA survey made among university, company, and other management researchers, few clear-cut agreements on this question could be found.

"What, in your opinion," the social scientists were asked, "are the five most important research projects relating to people at work that have been completed or undertaken during the past 10 years?"

From the answers, four studies, or related groups of studies, clearly emerged as being of major significance. All of these were mentioned by one fourth to half of the respondents:

1. The University of Michigan Survey Research Center's studies of the relationship between productivity, morale, and supervision by Rensis Likert and his associates, Daniel Katz, Robert Kahn, Nathan Maccoby, Nancy Morse, Floyd Mann, and James Dent.

2. The studies at Yale, by Charles R. Walker and Robert H. Guest of the Institute of Human Relations on the human aspects of technology, and those by E. Wight Bakke and Chris Argyris, of the Labor and Management Center, aimed at the analysis of organization.

3. The work of William Foote Whyte at Cornell analyzing the psychology of groups.

4. The leadership studies by Carroll Shartle and his associates, Ralph M. Stogdill, Edwin A. Fleishman, Edwin F. Harris, Harold E. Burtt, John

K. Hemphill, Alvin E. Coons, William E. Jaynes, and Donald T. Campbell, of Ohio State's Personnel Research Board.

In addition to these four, five studies were mentioned three times, four twice, and 37 once. A list of all the studies mentioned by more than one respondent will be found in the appendix to this article.

Several generalizations can be made about the projects selected. First, most of them are major undertakings by groups of researchers. This is particularly true of those mentioned most frequently. (Even Whyte's studies are the product of a team approach.) Second, the trend is toward interdisciplinary research, with psychologists, sociologists, and social psychologists, economists, and anthropologists working together. Third, there appears to be a tendency to search for the informal, the indirect, and the unconscious aspects of behavior. Fourth, most of the studies present an hypothesis. It is almost axiomatic for the authors to end with a challenge to further research for verification. But seldom is a previous hypothesis tested, except to criticize it as a point of departure. Finally, there is an attempt in many of the studies to develop constructs which are useful in the analysis of behavior. It almost seems as though the constructs come first and cases are then sought to verify them.

At first glance the broad scope of some of these projects and the lack of general agreement as to their significance might seem to indicate that management research is galloping off in all directions and possibly shows little promise of making any major contributions. Actually, however, many of these studies are still in their early stages, and there is every reason to hope that, by 1965 or 1970, we shall have several major investigations to look back upon as post-World War II accomplishments. Not since the first Hawthorne studies during the thirties has there been such promise of significant additions to our knowledge.

The fact that many projects are not widely known as yet is partly due to the proliferation of disciplines and the lack of common media of communication among them. As their findings are translated into the various languages of other specialists and more particularly into the language of managers, there is no doubt that their significance will be more widely recognized.

For the benefit of the manager who may be unacquainted with the four groups of studies singled out by social scientists as being of special significance, here is an outline of their major findings.

Survey Research Center Studies

The Survey Research Center's continuing studies at the University of Michigan were the most frequently mentioned project in the survey. The first publication in this series, *Productivity, Supervision and Employee Morale in an Office Situation,* reported the findings of a study carried out in the home office of the Prudential Insurance Company in Newark, N. J. After identifying high- and low-pro-

ducing work sections and divisions performing comparable work and composed of workers with similar backgrounds, the research team then studied the differences in supervision between high- and low-producing groups that might account for the differences in productivity. All 742 non-supervisory employees and 73 supervisory and managerial personnel covered by the study were interviewed by researchers who did not know whether they were members of high- or of low-productivity units. The findings showed that first-line supervisors in high-production work groups differed from those in low-production groups in:

1. Receiving less close supervision from their own superiors.
2. Placing less direct emphasis upon production as the goal.
3. Encouraging employee participation in decision making.
4. Being more employee centered.
5. Spending more time in supervision and less in straight production work.
6. Having greater confidence in their supervisory roles.
7. Feeling that they knew where they stood with the company.[1]

A subsequent study, following the same design, was made among Chesapeake and Ohio Railroad section gang workers. These railroad workers were widely disbursed and had considerably less contact with their supervisors. Nevertheless, many of the findings of this study were consistent with those of the earlier one:

1. There was a direct relation between section productivity and the supervisor's assumption of a leadership role.
2. There was a direct relation between section productivity and the supervisor's "employee-orientation."
3. There was a tendency for section productivity to vary inversely with the supervisor's feeling of pressure from above. (This tendency was not statistically significant in either study, however.)
4. There was a direct relation between section productivity and the first-line supervisor's feeling of autonomy as regards higher-level supervision.
5. There was a direct relation between section productivity and the employees' evaluations of their work groups. (This was not statistically significant in the railroad study.)
6. There was a tendency for section productivity to vary inversely with the employee's intrinsic job satisfaction (not statistically significant in the clerical study).[2]

On the other hand, some of the findings of the railroad study seemed to be inconsistent with those of the earlier one, and other researches that have since been carried out by other groups appear to cast doubt on the conclusion that highest productivity is achieved through "employee-centered" supervision.[3]

Studies at Yale

The studies conducted at Yale University fall into two distinct groups. The first, carried out by the Institute of Human Relations, has been con-

[1] *Productivity, Supervision and Employee Morale: A Report from the Survey Research Center of the University of Michigan,* Ann Arbor, Mich., 1948.

[2] D. Katz, *et al., Productivity, Supervision and Morale Among Railroad Workers,* University of Michigan, Survey Research Center, Ann Arbor, Mich., 1951.

[3] For further comment on this point, see the article by J. C. Flanagan following.—ED.

cerned with the human aspects of technology. The most frequently mentioned publication in this series was *The Man on the Assembly Line,* by Charles R. Walker and Robert H. Guest, a report on the findings of a study made in an automobile assembly plant. The authors found that 90 per cent of the workers disliked the mechanical pacing, repetitiveness, minimum skills, predetermined methods, minute subdivision, and superficial mental attention inherent in mass-production jobs. These dislikes were reflected in low job satisfaction and high absenteeism and turnover, even though pay, security, and working conditions were generally considered desirable. However, the fact that most of the workers came from different types of jobs may have strengthened their reactions, the authors pointed out. They concluded that job rotation and job enlargement may offer possibilities for increased satisfaction and long-run gains in productivity. They also suggested that the predetermined methods might be opened to worker participation at changeover times.

The findings of later studies in this series, pointing out their implication for supervisors and higher management generally, have been reported in *The Foreman on the Assembly Line.*

The second group of studies at Yale, by E. Wight Bakke and Chris Argyris of the Labor and Management Center, deals with organizational theory and problems. Bakke's *Bonds of Organization* and *The Fusion Process* provide a framework for the analysis of work relationships based on a study of a telephone company. The critical factors within this framework are identified as the functional specifications, the systems of status, communications, rewards and penalties, and the purposes of the organization. Bakke emphasizes that the interaction between the formal or planned and the informal or adaptive is an inseparable whole—neither describes "reality" without the other. He suggests that the effectiveness of organizational structures depends on the degree to which they enable employees to fulfill such goals as status, economic security, and control over their own affairs.

In *Organizational Structure and Dynamics: A Framework for Theory,* Bakke and Argyris further develop the concepts of the individual and the organization and the interaction between them.

In *Personality and Organization,* Argyris points out that the formal organization forces the employee to be dependent, subordinate, submissive, passive, and to use superficial skills—all the reverse of psychologically healthy behavior. As employees become more dependent and submissive, the organization tends to increase its directiveness, controls, specialization, and pseudo human-relations programs, thus causing still more adaptive behavior. He suggests that the only way to break this vicious circle is either to secure psychologically infantile employees or to change the formal structure and to use job or role enlargement, and more employee-cen-

tered leadership. Where the organization is too set in its ways to change, Argyris recommends what he calls "reality-centered" leadership.

William F. Whyte's Work

Three of William F. Whyte's books were mentioned in the survey. The earliest, *Human Relations in the Restaurant Industry,* shows how the demands of various interrelated jobs affect the relations between people and analyzes the accommodations that are made in the informal organization. This study of the inner workings of an organization of the type with which everyone is familiar is interesting in that it offers not only new insights into an everyday phenomenon, but also a pattern of analysis that can be applied to other organizations. In *Pattern for Industrial Peace,* Whyte analyzes the development of constructive union-management relations at the Inland Steel Container Company. As the relationship between the parties changed from one of conflict to one of consultation, previously irreconcilable differences were satisfactorily settled, grievances and tensions were reduced, and productivity was increased.

Whyte's third book, *Money and Motivation,* is a collection of reports by a number of authors on the responses of individual workers, groups, and entire plants to financial incentives. Informal restrictions on output, conflicts on rates, rate busters, and intergroup rivalries are examined, and various approaches that have successfully overcome some of these problems are described and analyzed. Whyte concludes that responses to the piece-rate system are strongly influenced by the human relations context in which it operates—hence the reason why traditional piece-rate systems often develop "bugs" that were not anticipated. He suggests that active cooperation, which may be attained in a variety of ways, will provide stronger motivation, and should be planned for.

Leadership Studies at Ohio State

Ohio State's Personnel Research Board has broken away from the traditional approach of describing leadership traits, and focuses instead on actual performance. These studies, conducted over a 10-year period in a number of military organizations and industrial enterprises, have charted the duties, functions, responsibilities, and activities of executives. The differences between the successful and the unsuccessful leader have been identified, along with similarities among successful leaders in different situations. The findings indicate that the effective leader heads a group where group interaction is facilitated, and the members maintain their membership identification. A strong initiating structure and high consideration for the group also characterize the successful leader. In addition, different leaders tend to have different but persistent patterns of behavior, these studies find. These tentative findings are now being applied to problems of selection, evaluation, and training. Thus far, the Ohio State studies have

been confined to a series of somewhat technical monographs. They will undoubtedly become better known when they find their way into more widely read journals.

Other Significant Studies

Several projects which, though mentioned less frequently, have added solid pieces or, at all events, suggestive fragments to the body of knowledge in the management field may be worth mentioning here. For example, the Illini City study provides a detailed picture of labor-management relations and its environment. The importance of the sociological rather than the economic or psychological factors which are usually stressed, is clearly brought out. Father Purcell's study of union members in Swift and Company's Chicago stockyards plant shows that it is possible for workers to have "dual allegiance"—a feeling of loyalty to both company and union. This finding runs counter to the assumptions of many management and union people that loyalty must be an "either or" proposition.

Some experimental research on the fundamental characteristics of organization structure is reported by Alex Bavelas, Harold Leavitt, and others. While the results are tentative, they open the way for the design for further experiments in an area hitherto the exclusive province of speculation and theory.

The only work mentioned from abroad, Elliott Jaques' *The Changing Culture of a Factory,* describes the Tavistock Institute's experiments in the Glacier Metal Company, a British manufacturing concern. This program —a prolonged series of group activities in which the groups alternately took action and then analyzed their own motivations—was perhaps the first experimental application of group therapy in an industrial setting. The fact that the factory prospered in the process is not insignificant. In the United States, similar programs have been developed at the National Training Laboratory in Bethel and elsewhere. The same technique has also been used in industry, though not for research purposes.

The final study of note is part of an on-going project at Carnegie Tech under the direction of Herbert Simon. In *Administrative Behavior,* Simon is concerned with the decision-making processes of administrative organization. He offers a theory in which the process whereby the administrator arrives at a rational choice is related to the organization, and particularly the role of authority, as it affects decision making. Simon brings together such diverse approaches as Chester Barnard's concept of organization, the game theory of Von Neumann and Morgenstern, the sociologist Talcott Parson's "action theory," and the social psychology stemming from Freud's work. He is pursuing his studies further with a group of colleagues.

To sum up, the replies from the sample of social scientists queried show that a variety of ambitious and promising research projects is under way. While a larger sample might show a different order of choice, the

survey pointed up four studies that appear to be generally regarded as significant, along with others that may well be of equal merit. This brief review has indicated the areas in which substantial progress is being made and some of the findings that are likely to find their way into practical management thinking within the next decade.

APPENDIX

Research Studies Mentioned By More Than One Respondent

Daniel Katz, *et al., Productivity, Supervision and Morale in an Office Situation,* University of Michigan, Institute for Social Research, Ann Arbor, Mich., 1950.

Charles R. Walker and Robert H. Guest, *The Man on the Assembly Line,* Harvard University Press, Cambridge, Mass., 1952; with Arthur N. Turner, *The Foreman on the Assembly Line,* Harvard University Press, Cambridge, Mass., 1956.

E. Wight Bakke, *Bonds of Organization: An Appraisal of Corporate Human Relations,* Harper & Brothers, New York, 1950; *The Fusion Process: An Interim Report,* Labor and Management Center, Yale University, New Haven, Conn., 1953; with Chris Argyris, *Organizational Structure and Dynamics: A Framework for Theory,* Labor and Management Center, Yale University, New Haven, Conn., 1954.

Chris Argyris, *Personality and Organization,* Harper & Brothers, New York, 1957.

William F. Whyte, *Money and Motivation: An Analysis of Incentives in Industry,* Harper & Brothers, New York, 1955; *Pattern for Industrial Peace,* Harper & Brothers, New York, 1951; *Human Relations in the Restaurant Industry,* McGraw-Hill Book Company, Inc., New York, 1948.

Edwin A. Fleishman, *et al., Leadership and Supervision in Industry: An Evaluation of a Supervisory Training Program,* Bureau of Educational Research Monograph No. 33, The Ohio State University Press, Columbus, Ohio, 1953.

W. Ellison Chalmers, *et al., Labor-Management Relations in Illini City,* University of Illinois, Institute of Labor and Industrial Relations, Champaign, Ill., 1953-1954.

Theodore V. Purcell, *The Worker Speaks His Mind on Company and Union,* Harvard University Press, Cambridge, Mass., 1953.

Alex Bavelas, *et al.,* "Networks Research," Massachusetts Institute of Technology, Cambridge, Mass., 1950.

Elliott Jaques, *Changing Culture of a Factory,* The Dryden Press, Inc., New York, 1952.

Stanley E. Seashore, *Group Cohesiveness in the Industrial Work Group,* University of Michigan, Survey Research Center, Ann Arbor, Mich., 1954.

L. Coch and John R. P. French, Jr., "Overcoming Resistance to Change," *Human Relations,* No. 1, 1948, pp. 512-532.

George C. Homans, *The Human Group,* Harcourt Brace & Company, New York, 1950.

Herbert A. Simon, *Administrative Behavior,* The Macmillan Company, New York, 1951; *Models of Man,* John Wiley & Sons, Inc., New York, 1957.

Why does Bob Smith turn out more widgets than Charlie Brown? Will Joe Blow make a good supervisor—and for that matter, what is a good supervisor anyway? Research may not have provided definitive answers to such questions, but it is beginning to point the way.

II. Personnel Research and the Better Use of Human Resources

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THE EFFICIENT USE of human resources requires three types of information: (1) Knowledge of the procedures for defining, identifying, and describing the abilities, limitations, and potentialities of available personnel; (2) knowledge of the possible patterns of organization, methods, and management needed to accomplish the goals of the enterprise; and (3) knowledge of how the available human resources can be most effectively combined with these patterns.

These types of information may be available in two forms. The first, and simplest, form includes facts, terms, and concepts or ideas. Facts are facts, but terms are arbitrary, and ideas may be faulty. Over and above this basic information, therefore, a more sophisticated type is also needed. This second type is usually expressed in the form of predictions and explanations. These are qualitatively different from the simpler forms of information in that they are arrived at by procedures which make it possible to establish their accuracy with a high degree of probability. Such estimates of probability are the product of research and constitute the hallmark of research studies.

Facts of a simple descriptive type, which supply names for specific things, and concepts which consist of generalizations, or ideas developed by analogy, are highly useful and form by far the greater part of the information at our disposal for solving the problems of personnel management. The most effective solutions cannot be expected, however, until ideas and

NOTE. This article has been adapted from a paper presented at the Second Conference on Research Developments in Personnel Management organized by the Institute of Industrial Relations of the University of California, Los Angeles.

opinions are replaced by predictions and explanations that have been verified through research.

It is important here to distinguish between the kind of information that can be accepted and used in its present form and the kind that needs to be confirmed or validated by research. No scientific investigation is required, for example, to verify the fact that Employee A winds more coils than Employee B. On the other hand, the belief that Employee A is more productive because he had a training course and Employee B did not, cannot be accepted without confirmation by research.

The difference in productivity between these two employees may well be due to differences in their intellectual or physical characteristics, or to variations in their previous experience. Were A and B identical twins who differed in no other respect than that one had had the training course and the other had not, it might be justifiable to conclude that the training course was the determining factor. Otherwise, it is necessary to observe more employees, selected in such a way that all other factors affecting productivity are balanced out and only the influence of the training course differentiates the two groups. If a difference in their productivity is then found, the probability that the training course had in fact increased the productivity of those who had taken it can easily be determined by using appropriate statistical methods.

Unfortunately, in many of the problems of personnel management, there are so many differences between Employee A and Employee B, and between Department X and Department Y, that we cannot with confidence identify the cause of observed differences in productivity. Though the research approach can play an important part in solving such problems, it must be added that here, as elsewhere, we can easily reach the point of diminishing returns. In many instances, the advantage of adopting one set of procedures rather than another may be so small that it is not worth while carrying out an expensive research project to determine what factors are producing the difference. On the other hand, if the research cost is relatively small, the resulting over-all savings may be considerable.

Steps in the Research Approach

As a rule, personnel research falls into four main phases. It may be helpful to consider each of these in some detail.

1. *Fact finding.* At this stage, emphasis is placed on obtaining a representative sample of the crucial type of events being studied. In addition to securing a representative sample, it is important to insure that the data being collected are relatively objective, i.e., not appreciably influenced by the biases or prejudices of the persons reporting them. This will entail the collection of several thousand incidents or examples in accordance with a systematic plan that insures objectivity and representativeness for the facts obtained. In collecting these facts, it is usually essential for the research

team to work closely with the personnel participating in the activity being studied.

2. *Hypothesis formulation.* In this phase, ideas, insights, and hypotheses are formulated from a systematic study of the facts collected in the first phase. Experience has shown that the most effective formulations of ideas and hypotheses follow when the facts are reviewed by teams consisting of both research and operating personnel. Because of their background in the theory and principles of human behavior, research workers are able to supply insights and tentative solutions which might not occur to others. Operating personnel, on the other hand, are often able to supply detailed interpretations of the facts and estimated predictions of the effectiveness of proposed solutions because of their intimate knowledge of the actual working situation.

3. *Evaluation.* The evaluation of the tentative solutions developed in the second phase is the crucial step which insures growth and progress rather than mere innovation and change. The evaluation process comprises three important elements. First comes the design of the evaluation study, including the selection of appropriate groups, the specification of standardized conditions, and the precise description of the new procedure being studied. Second is the development of measures of the results obtained—and here it may be added that measuring results and determining criteria of effectiveness are among the most difficult problems in personnel research. The third stage in the evaluation process is the statistical analysis of the results. It should be obvious that professional know-how is needed if evaluation is to be effectively carried out.

4. *Interpretation and application of the results.* This final stage includes an assessment as to how far the study's findings may have general applicability. This, however, will depend primarily on the terms in which the problem was originally formulated and evaluated. In interpreting the results, the limitations of the findings must be explicitly stated. It is believed that a research project cannot be considered completed until its findings have been applied.

Not all research projects include all four of these steps or give similar emphasis to them. Some of the research findings reported in this paper have consisted primarily of the first phase or the first two phases only. Others have ignored the first two and proceeded directly to the third and fourth.

What Do We Know About People?

Probably the most important type of information for personnel management is knowledge of the abilities, limitations, and potentialities of available personnel. This embraces two principal areas: first, a knowledge of the characteristics which are common to all or nearly all people, and second, a knowledge of the principal ways in which people differ as regards those characteristics that are important for maximizing the organization's effectiveness. While it is essential for the personnel manager to understand

what is known about motivation, innate and acquired drives, emotions, and the nature and principles of learning and of problem solving generally, it is equally important for him to realize that people manifest marked individual differences in each of these fundamental aspects.

Among the basic dimensions that have been found more useful for describing people are intelligence, specific aptitudes, and patterns of interests, values, and underlying motivations, along with patterns of attitude, temperament, and habit. It is now fairly well accepted among psychologists (except those in the USSR) that intelligence and specific aptitudes are relatively stable throughout the individual's life, and cannot be greatly modified after early childhood. Whether the other types of individual differences can be more readily changed is still a matter of dispute, but there appears to be considerable evidence that these also remain substantially stable throughout life.

It would seem obvious, therefore, that effective personnel management requires relatively accurate yardsticks in order to assess the level of each employee with respect to the various personal dimensions mentioned above. Unfortunately, psychologists have not as yet produced a uniform set of dimensions whose definition and interpretation are simple and direct. Personnel research workers have, however, developed tests combining as many of the relevant dimensions as possible into a single work-sample test aimed at predicting success in one specific job. They have also tried to develop tests, using the methods of factor analysis, which cover all conceivable intellectual and personal activities.

Another approach has been to identify the job elements common to several types of work and, on the basis of this analysis, to construct tests for predicting performance on these particular tasks. It is hoped that further experience with these job element tests will make it possible for the personnel manager to identify from the reports of supervisors the important elements in each specific job and, on the basis of test results, place people with high scores in them.

Identifying Job Elements

The job element identification procedure can be used either to develop a general battery of tests[1] from which specific selections can be made, or to develop a special battery for a specified group of jobs. Working along these lines, the American Institute for Research has recently developed a battery of tests for airline pilots and flight engineers, a test battery for classification in a particular agency, and another for technicians in a research laboratory. In each of these situations empirical studies have been made to check the validity of the batteries that were developed. Substantial gains have followed from the adoption and use of the tests in each case.

Although considerable work remains to be done to improve tests of

[1] J. C. Flanagan, *Aptitude Classification Tests*, Science Research Associates, Chicago, 1954.

important job elements, the needs in the field of attitude and personality characteristics appear even greater. Two promising developments in this area will be reported here. The first arose from the observation that, for the most part, behavioral acts affecting production in a certain manufacturing plant represented failure to do things which the employee was quite capable of doing rather than any lack of ability or training. This led us to develop an attitude test for use in selecting employees. A follow-up study one year later found that actual job performances, based on foremen's ratings, were better predicted by the attitude test than by an intelligence test, a test of mechanical ability, or a test of manipulative skill. This finding rather contradicts the general tendency for ability tests to be more predictive of job performance than tests of attitude or personality traits. However, it is, of course, consistent with the initial observation that, in the particular jobs studied, attitudes were more important than abilities.

Measuring and Predicting Supervisory Skills

Research has also proved fruitful in measuring and predicting supervisory skills. Research studies have definitely established, for example, that intelligence tests and tests of supervisory judgment are predictive of supervisory performance. During the past few years, much research effort has been devoted to developing non-intellectual measures of effective performance as a supervisor. Following are the results from two research studies in this area.

In the first study, several thousand examples of effective and ineffective supervisory performance were obtained. Analysis of these examples led us to 28 important behaviors for supervisors. Various problem situations typical of those faced by a supervisor were then developed so as to provide several opportunities to evaluate performance on each of the 28 critical behaviors. Objective checklists including the specific behaviors to be scored either positively or negatively were prepared for each problem.

The score on a group of problems containing about 300 such items showed fairly good consistency (reliability coefficient .60). The procedure was validated by Hahn and Suttell,[2] who compared the test scores with ratings of supervisory effectiveness. For a group of about 200 supervisors, nearly twice as many of those ranking high on the test were rated above average in supervisory performance as were those ranking low on the test. The validity coefficient was .20.

Other evidence of validity was provided by comparing the scores for persons with no supervisory experience with those having approximately two years' and those having about 12 years' experience. The differences were in the expected direction and were statistically significant.

[2] C. P. Hahn, *The Development and Validation of Situational Problems for Training in Those Leadership Behaviors Essential for Effective Performance as a Junior Officer*, American Institute for Research, Washington, D.C., 1956; B. J. Suttell, "Evaluating Potential Officer Effectiveness in a Training Situation," *Journal of Applied Psychology*, Vol. 39 (1955), pp. 338-342.

In a similar study by Schwarz and Glaser,[3] a specific attempt was made to develop practical procedures to supplement an intelligence test and a test of supervisory judgment in identifying superior foremen. Four principal types of procedures were developed—a standardized three-man panel interview, a standardized man-to-man interview, a situational performance problem with no assigned leader, and a situational performance problem involving dealing with a subordinate.

Two forms of each of these procedures were developed. Each of the procedures showed fairly consistent results for the two independent evaluations. (The reliability coefficients for the combined scores were respectively, .78, .66, .86, and .50.)

The validation study was carried out by comparing 20 superior foremen with 20 mediocre foremen at each of two locations. To avoid any possible spurious relationship based on the individual's reputation, personal acquaintance, or other irrelevant factors, the evaluation team at each location was made up entirely of personnel from the other location. The results indicated that the use of these procedures would add .07 to the validity coefficient achieved by the intelligence and supervisory judgment tests alone. Of the four, the leaderless situational performance problem had the highest consistency for the two forms and a slightly higher validity coefficient in these samples. The next highest validity coefficient was obtained for the problem involving dealing with a subordinate.

A different approach to the problem of predicting supervisory effectiveness proceeds from the observation that the best predictor of future performance is past performance. Although standard samples of job elements, situational problems, or work samples provide scores that have greater objectivity, comparability, and reliability than measures of past job performance, this latter must always remain an important and highly relevant source.

Numerous research studies have shown, however, that, in many cases, merit ratings are actually of little value. Their value can be increased by (1) more extended observations of actual job performance or its products; (2) greater frequency of such observations; and (3) greater uniformity in defining job categories and standards of performance within these categories.

The Critical Incident Record

One way to accomplish this is to keep a daily performance record of critical incidents.[4] It has been found that if these incidents are not recorded daily, half of them are forgotten by the end of the week and three-quarters are lost after two weeks. The effectiveness of the daily critical inci-

[3] R. Glaser, P. A. Schwarz, and J. C. Flanagan, *Interview and Performance Tests for the Selection of Wage Board Supervisors,* Personnel Research Branch, The Adjutant General's Office, Department of the Army, Washington, D.C., 1956.

[4] J. C. Flanagan and R. B. Miller, *The Performance Record Program: The Critical Incident Method for Employe Appraisal and Development,* Science Research Associates, Chicago, 1955.

dent record as a developmental tool is attested by a recent report by Hendrix and Stewart.[5] Largely as a result of such a program, they indicate that at the Delco-Remy Division of General Motors grievances about promotions have been reduced by 60 per cent. At this division, no promotional grievance has had to be referred to an umpire within the last five years, despite the fact that, out of 3,600 promotions, in 73 per cent of the cases the man who was promoted was not the senior person in the group.

Other procedures that have been found to yield consistent and valid measures of performance include daily ratings, as in certain types of training courses, and special evaluations on standardized assignments which are uniform for several persons.

While records of past performance are important for predicting the future, it must not be assumed that because a person has done well in one type of activity he will do equally well in another and unrelated one. The most highly skilled worker does not always make the best foreman. Information about past performance must be well classified, if it is to serve as a predictor of success in a new position.

The second area in which information is required for the effective use of human resources is that concerned with the relative effectiveness of various models of organizational structure; we need to know, also, what results can be expected from the use of one set of methods and procedures rather than another. Unfortunately, the research approach has not yet been systematically applied to the problem of determining the most effective types of organizational structure. Effective organizations can be found having almost every conceivable type. There is no doubt that the most effective organizational structure depends on both the men and the methods employed, as well as on the general environmental conditions and the nature of the task. One trend is toward decentralization and independent, responsible units. Another is toward a horizontal rather than a vertical organizational structure. Research data are not available, however, to evaluate the relative worth of these concepts.

As regards methods and procedures, somewhat more information has been obtained. Industrial engineering is an established part of the modern company. Although most of the information regarding methods is specific to the task in question, some general trends are clearly apparent, such as the assembly line and automation.

During the past 10 years, there have been a number of investigations of the methods used by supervisors in dealing with subordinates. Supervisors have been classified as "production-centered" or "employee-centered." Although, at the outset, it was claimed that the employee-centered method of supervision resulted in greater productivity than the production-centered method, more carefully controlled

[5] A. A. Hendrix and B. Stewart, "Appraisal of Employee Performance," *Addresses on Industrial Relations, 1957 Series*, University of Michigan, Bureau of Industrial Relations, Ann Arbor, Mich., 1957.

studies in recent years have tended to reverse this finding. These later studies suggest that while the workers of the employee-centered supervisor like him better, they usually produce a little less than the workers of production-centered supervisors. There is also evidence that a favorable attitude toward the immediate supervisor does not carry over to other levels of management or to the company as a whole.

Patterns of Supervisory Behavior

Research in this field has been limited and sometimes apparently conflicting. Both the research approaches used have suffered from specific defects. Laboratory studies of management methods have often been hampered by over-simplification of the situation and lack of realism. On the other hand, where the research has been carried out in business and industrial organizations it has been difficult to control all the relevant variables. A recent study that endeavored to overcome these defects is that by Spector and Suttell.[6] In this study, which was sponsored by the Psychological Sciences Division of the Office of Naval Research, a systematic attempt was made to reproduce typical field conditions in a controlled laboratory situation.

On the basis of a systematic analysis of 12 types of work groups aboard naval destroyers, a task situation was designed to reproduce both the structural and the functional variables found in representative work groups of these types. The variables included in the task situation were size of group, location of members, communication structure, nature of inputs to the group, group activities, group outputs, and the types of supervisory activities influencing the production of the work group.

Groups composed of three members and a supervisor performed an information processing task modeled after the combat information center activities. Their performance was measured in quantitative terms. The group score was the number of correct responses to 200 trials of information processing. The effects of three different patterns of supervisor behavior on the group scores were then compared.

The experimental group consisted of 30 teams and three leaders. After a suitable training period in the first pattern of supervisory behavior each leader used this pattern in supervising several groups. The same procedure was then followed with the second and third patterns. The three patterns of supervisory behavior were designed in accordance with the following principles:

1. *Single-leadership pattern.* Based on the principle that, in a task-oriented group, the most effective supervisory behavior is that which maximizes the quality of planning and decision-making, and the effectiveness of implementing these plans and decisions, by establishing and maintaining a separation of functions between supervisors and those

[6] P. Spector and B. J. Suttell, *An Experimental Comparison of the Effectiveness of Three Patterns of Leadership Behavior,* American Institute for Research, Washington, D.C., 1957.

responsible for carrying out the assignments. This pattern is similar to what is usually called *authoritarian*.

2. *Leadership-sharing pattern*. This pattern follows the principle that, in a task-oriented group, the most effective supervisory behavior is that which maximizes the individual satisfactions of the group members by providing maximum opportunity for all members to participate in planning and decision-making and to share the responsibility of achieving the goals of the group. This pattern is similar to the one usually called *democratic*.

3. *Reinforcement pattern*. Based on the principle that, in a task-oriented group, the most effective supervisory behavior is that which maximizes positive reinforcements; that is to say, effective rewards are identified and programmed to increase the actions that help to achieve the goals of the group.

The study found that the work groups where the reinforcement principle was used made significantly higher scores than the groups supervised according to the principles of either single or shared leadership. Production was 15 per cent greater in the reinforcement groups than in the single-leadership groups and 13 per cent greater than in the leadership-sharing groups.

It is planned to carry out additional research to ascertain how far these findings are generally applicable. Research is also needed to obtain more definite information on the specific behaviors which are most effective in increasing production. Nevertheless, it seems reasonable to conclude at present that supervisors will be most effective if they are able to integrate the needs of the individual employee with the goals of the group in such a way as to reinforce those behaviors which contribute most to production. It is important to note that the supervisor's power to reinforce group members is to some extent dependent on his prestige and authority, as well as on his insight into their needs.

Combining People and Procedures

The problem of determining how the available human resources can be most effectively combined with methods and procedures to accomplish the goals of the organization has no single solution. The most appropriate combinations will depend on many factors specific to the situation. It is a primary function of management to find the unique contribution which will maximize gains in the direction of its aims. In recent years, important advances have been made in the development of theoretical and mathematical procedures for solving such problems. This development, which probably owes most to the work of Wald,[7] is known as *decision theory*. The essence of decision theory is to insist that the problem be formulated in a completely rational manner. The costs of all elements, such as personnel, materials, services, and capital, must be estimated and the consequences of specific

[7] A. Wald, *Statistical Decision Functions*, Wiley & Sons, New York, 1950.

decisions in similar units determined. The problem of evaluating outcomes and obtaining accurate estimates of costs makes it difficult, however, to use the rigorous models provided by decision theory in arriving at practical solutions of the over-all managerial problem.

Nevertheless, it is well to keep in mind that decision theory does provide a sound framework and can be used to solve specific, if limited, problems, provided the necessary data can be obtained. For example, decision theory may be used to set up a problem comparing the relative effectiveness of various combinations of selection and training programs. If both the costs and the benefits of specific personnel selection procedures and personnel training procedures are known, and the benefits to be expected from intensifying the selection procedure and lengthening the training course can be assessed, the net gains can then be calculated.

To recapitulate, management can obtain sound information regarding the human resources at its disposal by means of standard tests, evaluation of special assignments, and comprehensive records of performance. This information should be collected in an objective form so that it can be used as a permanent basis for planning the maximum development of the individual employee, as regards both his contribution to the organization and his personal satisfactions.

Recent research findings suggest that the most effective pattern of supervisory behavior is neither employee-centered nor production-centered, but involves rather the integration of the aims of the work group and the needs of each member in such a way that group members are individually reinforced in those activities which contribute to the greatest over-all group effectiveness.

Through a more vigorous application of the research approach outlined in this article, we may hope to acquire the basic knowledge needed to insure that our use of human resources provides each individual with the opportunity to realize his maximum potential within the work setting.

Marked Decline in Strike Activity

STRIKE ACTIVITY during 1957 hit a postwar ebb with fewer workers idled and less time lost than in any of the years since 1946, reports the Bureau of Labor Statistics. Of the 3,673 strikes reported, affecting 1,390,000 workers, with a loss of 16,500,000 man-days, 1,965 occurred in manufacturing. The number of manufacturing employees involved was down 43 per cent from the 1956 total, and the number of manufacturing man-days lost dropped 65 per cent.

Much of the improvement in time lost was due to the fact that the average duration of strikes was shorter than in most postwar years. The large number of previously negotiated long-term contracts was partly responsible for the drop in strike activity.

Far from hailing the four-day week, the author finds no case for a further cut in working hours. What the economy really needs, he argues, is greater flexibility in the hours we now have.

An Economist Looks At The Shorter Work Week

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IN THE LAST century there has been a remarkable reduction in the standard hours of work—per day, per week, and per year. And we are commonly inclined to think that what has been going on in the history with which we are familiar and of which we have first-hand knowledge has been going on forever. But it is worth noting that, from the beginning of the Christian era until about 1860, the standard hours of work remained unchanged —from sunrise to sunset six days a week. This article is concerned with the question whether it is either likely or desirable that this relatively new trend toward shorter hours should continue.

For individual workers and individual companies, the reduction of working hours during the past century came in discrete, fairly large steps —from six days, to five and one half, to five; from 12 hours, to 10, to eight. But different companies and industries took these steps at different times, so that the national totals show a smooth and gradual decline in average hours. Today, there is almost universal adherence to the most recent step—the 40-hour week. Some companies have gone to shorter weeks, but these are still isolated cases, not clearly indicating whether another standard is being established. Recent discussion and proposals have raised the question, however, whether industry should now go a step further.

What are the economic considerations involved? Of course, economic considerations are not the only ones to be taken into account. After all, we are discussing how people should live, and this is never a matter of economics alone. In fact, so far as working hours go, I would say that eco-

NOTE. This article has been adapted from a paper presented at AMA's Mid-winter Personnel Conference.

nomic determinants are less forceful than they were in the past. All the economist can do is indicate the nature of the choices that may be made. My thinking about this problem has led me to the conclusion that we have probably reached the stage where we need not so much a new standard as greater diversity and flexibility in the working hours we now have.

There are three general aspects of the present economic situation that may be relevant to the decision on changing standard hours of work—the business recession, the danger that inflation will be resumed, and our perilous position as regards national security. A brief review of the implications of each of these factors may be in order before discussing what, in my opinion, are some more important considerations affecting changes in working hours.

Unemployment and Inflation

In recent times—say in the last 30 years—actual or feared unemployment has been the main force behind the drive for shorter hours. Basically, it has been a share-the-work movement. Today, unemployment is unusually high. Would reducing the work week help to reduce it?

Of course, actual hours of work per week decline in every recession and have been declining in this one. In January, there were two million employed persons working less than 35 hours a week, as compared with about one million a year earlier.* This is a natural and, it seems to me, a perfectly proper response to the decline in the demand for labor.

But this is part-time work—working below the standard weekly hours. A reduction in the standard hours of work—a permanent, irreversible commitment to fewer hours per week and per year—is quite another matter. It seems to me clearly inappropriate to make such a commitment in response to a temporary aberration of our economy. The general condition of our economy is that jobs can be provided for all who want to work and for as many hours as they want to work, aside from the effects of frictions and fluctuations. To demonstrate this would require a comprehensive review of economic theory, history, and policy, carrying us far beyond the scope of this article. But I think there is now general agreement on this proposition among those who have studied it. Decisions about standard hours of work should be made on the assumption that there exists a condition of high employment, not that there is insufficient work to go around.

The danger of inflation, on the other hand, seems to me to present a much clearer case for maintaining present working hours. I base this view mainly on a consideration of the possible effect of the reduction of hours upon hourly wage rates. It is axiomatic, surely, that if hourly wage rates—on the average—rise faster than output per hour, inflation will result. I also take it as highly probable that whatever happens to standard weekly or annual hours, weekly or annual wages

*This refers only to non-agricultural workers who usually work full time and who were working part time for economic reasons.

are not likely to decline. So far as I know, there have been few, if any, cases where a reduction in weekly hours has been negotiated along with a reduction in weekly earnings. In fact, it can probably be assumed that demands for higher weekly earnings will continue to be pressed alongside with demands for shorter hours.

Over the long run in our history, output per hour has risen by 2 to 3 per cent a year. This has permitted a large increase in weekly earnings and a large reduction in weekly hours. But there are still limits as to how far we can combine increases in weekly earnings and reductions in weekly hours without inflation—in fact, strict and easily calculable ones. Thus, if we can raise productivity 3 per cent a year, this means, roughly, that hours can decline 3 per cent a year if weekly earnings remain stable. Or, if weekly earnings rise 1 per cent a year, hours can decline 2 per cent, and so on.

My own conclusion from this arithmetic is that any substantial widespread reduction of hours within a short period would be inflationary, since weekly earnings would not fall and labor costs would rise. In general, the inclusion of shorter hours as a bargaining issue probably makes it more difficult to keep increases in hourly wages at a non-inflationary level. More difficult, but not impossible. As I have indicated, shorter hours and higher weekly earnings *can* be combined in a manner that is compatible with price stability. And we could arrive at this combination if labor would recognize that it cannot get, and business would recognize that it cannot pay, more for an hour's work than labor produces in an hour. That is something we shall have to learn anyway, whatever happens to hours.

The Defense Situation

The heightened threat to our national security—or perhaps one should say our heightened realization of the existing threat—is the third factor to be considered in any decision about shortening hours of work. Though there is general acceptance of the idea that when the nation is in danger we should all work harder and longer, this thinking does not seem to operate in our present situation. At all events, not unless the response to the security threat takes the form of very much larger expenditures for national security than are now budgeted.

The arithmetic of this is simple. In 1957, we produced $434 billion worth of goods and services in this country. Of this total, $46 billion, or about 11 per cent, went for national security purposes. Another $108 billion was absorbed by other government expenditures, largely state and local, and by investment. The remaining $280 billion was spent by consumers on high and rising standards of living.

We can count on the total production of goods and services rising, say, by 3 or 4 per cent a year, if working hours are maintained. Thus, unless national security expenditures rise at a simply enormous rate, the goods and services available for consumption will also rise. From the standpoint of

national defense, there is no reason why American consumers should not take some of the fruits of economic growth left to them after defense requirements are met in the form of less work rather than in more goods and services. The essential thing is that the leisure come out of consumption and not out of provision for defense.

Nevertheless, there is a difficulty here. While people may choose between enjoying more leisure and earning more money, the taxes to pay for defense can only come out of the incomes that people earn. The more people take their welfare in the form of leisure, the higher tax rates will have to be to finance defense. However, this difficulty is conceptual, rather than real since, if people value their leisure as much as they value the income they give up to get it, the increased tax burden does not fall on them because they have chosen leisure instead of income.

In short, then, the fact or possibility of recessions does not necessitate a reduction in standard working hours. On the other hand, the danger of inflation and the threat to our national security do not necessitate that we forgo this reduction—provided we accept the basic fact that the less we produce the less we can earn and consume.

If these general considerations of recession, inflation, and defense do not tell us whether to shorten hours or not, what does? I think the nature of the answer is clear if we look at certain simple cases. Let us look at the self-employed taxi-driver, or the lawyer, or the writer, or anybody else who makes his own decision as to how long he shall work. Such a person has only to decide whether additional leisure is worth as much to him as the income he will not produce and therefore will not earn if he reduces his hours. We don't expect, or even want, him to decide this question in terms of recession, inflation, or defense. And we don't expect, either, that we can tell him what is best for him—at least, economists don't expect this. Others may.

What is true of the self-employed is true of the employed, but the determination is more complicated, for several reasons. First, the effects of reducing hours on production may be less immediately apparent. Second, the link between the effects on production and the effects on earnings may be obscured by the wage-determining process, though the link remains real. Third, working hours are determined in a collective process in which the preferences of individual workers may not receive adequate recognition. Fourth, efficiency may require a uniformity in working hours which overrides individual preferences in the matter.

Two Basic Questions

Despite these difficulties, the basic questions remain the same. How much production is lost by a cut in hours? How much income is the worker willing to give up in return for working fewer hours?

Unfortunately we don't know near-

ly as much as we should about either of these questions. In the early days of the shorter-hour movement, it is probable that shortening hours did not reduce output at all. Hours were then so long that reducing them increased the health and strength of the worker. Further, the reduction permitted double or triple shifting, which meant more intensive use of capital. In some cases, also, the forced transition to shorter hours shocked employers into seeking and finding more efficient methods of production.

These factors, I think, apply with much less force to industry today. Present working hours are not so long as to impair the health of employees—in fact, it has been asserted that they represent the minimum necessary for mental balance. Any possible productivity gains from shorter hours are likely to have been recognized by employers and considered in setting present hours. The advantages of multiple shifting have been pretty generally realized. Moreover, the pressure of rising labor costs and the general enthusiasm for research probably result in improved methods being adopted fairly rapidly, leaving little room for employers to be shocked into greater efficiency if hours are reduced.

I repeat that we don't really know, but I would be greatly surprised if, in general, a reduction of hours resulted in a compensatory rise in output per hour. It seems a reasonable assumption to me that less hours mean less income than would otherwise have been earned.

Suppose that this assumption is correct. Do workers want shorter hours if this means less income? There is very little evidence that workers in general want this, and some evidence that many do not. For example, sentiment in the Rubber Workers Union has shifted back from the 36-hour to the 40-hour week. A study carried out for the Pulp, Sulphite, and Paper Mill Workers reported no desire on the part of workers for shorter hours. For that matter, we have additional evidence bearing out this view in the recently published accounts of the prevalence of moonlighting. On the other hand, it does appear that some women and older workers would prefer shorter hours, even at less pay. And there are probably many people not now working who would like to do so if the hours were more convenient for them personally.

Some Tentative Conclusions

My own conclusions, based admittedly on insufficient evidence and some personal observation, may be summed up as follows:

1. We do not need a new large step to a shorter work week that will become standard for everybody.

2. We need more flexibility in the work week, to adapt it to the technological conditions of different industries. Different work weeks will be most efficient for different industries and we should beware of imposing uniform standards.

3. We should seek to provide the maximum adaptation of hours of work to the preferences of individual workers. This, it seems to me, is one

of the best ways in which we can use the increased productivity of which we are capable.

Of course, at no time could it have been assumed that the progressive reduction in working hours which began 100 years ago would continue indefinitely. I am only suggesting that we now consider the possibility that the advantages of further movement in this direction will be small.

We should, I think, be turning our attention to improving working conditions in another direction. It seems to me that the important class distinction in America is no longer that of high vs. low incomes: the distinction between the Cadillac and the Chevrolet is fading. Nor is the significant dividing line the one between those who work short hours and those who work long hours. As it happens, most of the people whom I personally regard as leading enviable lives work long hours. The important class distinction in America today is the distinction between the minority who enjoy their work and the vast majority who do not. This is a class distinction that we should be able to reduce if not eliminate. To make work not shorter but better—more satisfying, more challenging, more responsive to the needs of individual growth and development—this is the challenge to American management today.

Profile of the Unemployed

FACTORY WORKERS, particularly those in durable goods industries, are the hardest hit by unemployment, according to a Bureau of Labor Statistics report on the unemployed in May of this year. Of 4.9 million who were jobless, 1.7 million were in manufacturing and of these 1.4 million were in durable goods.

Major manufacturing and mining states had the highest unemployment rates: one third of the 2.2 million increase over the May, 1957, total was accounted for by Illinois, Indiana, Michigan, Ohio, and Wisconsin.

While unemployment was highest among unskilled workers and lowest among professional and managerial employees, the rates varied widely within similar levels of skill in different industries. Unemployment rose fastest among young people (14 to 24 years old), and slowest among older workers (55 years and over); among adults from 25 to 54, there was a rise of nearly 6 per cent. Unemployment also increased faster among men than among women, and among non-whites than whites. Married men accounted for 39 per cent of the total jobless, while 48 per cent were either single persons or married women, and 13 per cent were widowed, separated, or divorced persons.

Though many engineers have risen to top management posts, there's some truth in the belief that technical men, by and large, lack the broad outlook needed for success in the managerial job. Here the author suggests how engineers can be helped to overcome the defects of their highly specialized training.

Developing Engineers for Management Responsibility

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Not long ago, I had a phone call from a company president with a disturbing problem. He was concerned, as is any good chief executive, about the question of executive succession in his company—an acute problem in his case because he was close to retirement. He had tentatively picked as his successor a 45-year-old production vice president—a man who had originally been trained as an engineer, then had headed up research and development, and recently had been moved into production.

"Last night," he said to me, "I had dinner with an old friend of mine—a distinguished lawyer and company chairman. He warned me, 'Don't pick an engineer to head your company. They never work out—too narrow.'" My friend, the president, then went on to ask me, "Is he right? Should I change my plan?"

This president was putting that frequently posed question—"Do engineers make good managers?"—in its most specific form. The immediate reponse to this question is typically both explosive and positive—especially on the part of engineers. One is tempted to cite the great examples—Alfred P. Sloan, Jr., say, perhaps the most important single figure in the development of modern large corporate management. Mr. Sloan, an engineer, initiated a series of organizational concepts and commitments and then carried them out in administering the world's largest corporation for over 20 years He began as an engineer, but he became a giant of an administrator. Again, one thinks of George Washington Goethals, the engineer who made the Panama Canal a reality, and ushered in a new era of history in the face of fantastic problems. For that matter, any of us can recall the names of our own contem-

poraries who, originally trained as engineers, subsequently moved into top managerial posts.

And yet the great examples prove nothing except that it is possible for an engineer to move up to top management posts. However, there are some additional, if sketchy, data on this point. One study by Professor John B. Rae of the careers of MIT alumni over the past 40 years shows that almost half of them have gone into business in roles other than that of the professional engineer.[1] Most of this movement has been into managerial posts and the percentage going into management ranks has been, in Professor Rae's words, "persistent, substantial, and steadily increasing in volume." The record shows, he concludes, that at least one in five of MIT's engineering graduates is to be found in some kind of managerial role and that as they advance in their careers the ratio approaches one in two. There is no reason to believe that this movement would not be substantially paralleled by that of other engineering college graduates as well.

An analysis of the careers of alumni of the Sloan Fellowship Program at MIT is even more impressive. While one could easily argue that these men were already well on their way to managerial careers and hence are a highly skewed sample, the fact remains that almost all of them were originally trained as engineers and that over 50 per cent are now either presidents, vice presidents, general managers of divisions, plant managers, or in other positions requiring managerial responsibilities over functions other than engineering. The data, in short, tend to take the wind out of the sails of the statement of our lawyer friend.

And yet, a gnawing doubt remains. While there is ample evidence that engineers can and do move into middle management and top management positions, this after all is to be expected in a technological society where the skills and sensitivities of leadership are probably evenly distributed in most vocational populations. The interesting point is why the question should be raised at all. When people say, "he's a typical engineer," they seldom mean it as a tribute to the man's great managerial ability.

The Manager's Job

To explore this point further, we might begin by asking: What are the characteristics of the manager's job from the point of view of an engineer moving into the administrative process?

Basically, the manager's job is to integrate the resources of the organization—technical and human, financial and material—in such a way as to achieve its goals. He does this by taking responsibility for setting objectives, complete with a plan and a timetable to meet them; organizing the resources available to him to achieve these goals, including direction and control of the action taking place; and finally, evaluating his progress and

[1] J. B. Rae, "Engineering Education as Preparation for Management: A Study of M.I.T. Alumni," *The Business History Review*, March 1955, p. 71.

learning from his mistakes. At each of these stages, the road is strewn with decisions to be made—and the nature and scope of these decisions is determined by the level of the manager's job.

At the very top level, the manager must fully grasp the total relevance of all parts of the business. He must put the whole process into proper balance. That this ability to take in all the relevant factors in the situation is comparatively rare is evidenced by the fact that when we ask our guest Sloan Seminar speakers at MIT—successful top managers all—what deficiencies they most frequently encounter in rising managers, they almost invariably mention the failure to appreciate the importance of finance and human relations. In so saying, they do not, of course, imply that the technical side is unimportant. Indeed, if technical competence were not present, there would be no business at all. But, beyond engineering and production problems, there lies a whole range of integrating decisions not related to purely technical matters.

At middle management levels, the successful manager must also see the whole picture. He must go beyond the point at which engineering logics rule. For example, the history of the control of supervisors over subordinates in business has moved in the last hundred years through three stages. Originally, the basic relationship between the two was one of force—cold, brute force. During the past 20 years, the standard relationship has been one of what we might call authority—the acceptance by the subordinate of the supervisor's wisdom or competence. We are now moving into a new kind of relationship where the supervisor manages with the consent of his subordinates, and cannot manage without it. (The engineer-scientist frequently learns this the hard way. I remember one technician in a research laboratory complaining that his chemical-engineer boss was still calling him by the name of his predecessor of six months back. Despite his frequent corrections and protests, this subordinate was simply being treated as though he were another machine in the pilot-plant process. He didn't like it and all his colleagues knew that he didn't.)

The superintendent who understands the cost problem as it affects his budget, but not beyond it, the department head who views staff help as a veiled intrusion or threat, are other familiar examples of middle managers who lack a basic "feel" for the total picture. This is the dividing line between the men who can function reasonably well within the area of their own original competence and those who can go beyond to think in more and more broad terms.

Perceptions and Assumptions

Now let us take a look at the characteristics of the engineer in relation to the demands of the managerial job. By and large he epitomizes two common problems, present in all of us to some degree, but particularly acute in the case of those who have been trained along highly specialized lines.

The first problem we can subsume

under the heading of "perception." The engineer is especially prone to "see" things in a framework that is limited by his own experience and range of familiarity. In other words, his range of perception of the so-called "facts" of a situation is narrow. He refuses to "see" areas of management beyond these "facts." Or he refuses to accept responsibility for those things that are "beyond" his control.

The second problem, closely related to the first, we might call "assumption." What one "sees" is obviously affected by the way in which one assumes things work. Here the engineer also has a strike on him if he assumes too readily, for example, that people are less important than other variables in the business, or that financial management is something for the accountants to worry about. To assume away the basis of any part of the managerial process, by definition, limits the effectiveness of the manager in integrating the resources of the business.

Can these deficiencies be remedied by some educational process—and, if so, how? First of all, it is obvious that they are deficiencies only if we choose to call them so. The engineer who remains an engineer because he wants to is following in a great tradition. Indeed, many companies have tried to provide adequate compensation and status for the engineer as an engineer to keep him from answering the siren call of administration simply because it is the only way up. Here, however, we are not concerned with the engineer who regards the whole business of management as irrelevant and has no desire to function in any but a technical capacity. We are concerned rather with the engineer who is nominally functioning in a manager's role or who would like to become a manager but who still thinks exclusively in engineering and technical terms.

Four Avenues to Growth

We must first recognize who these people are—the men with the energy, integrity, and courage that are the hallmark of the good manager. And having once recognized them we must provide the opportunities that will enable them to gain the breadth that higher managerial jobs require. These opportunities for growth can take four main paths, all of them calculated to broaden perception and help break down the smug assumptions we all cling to in our various ways:

New tasks. The opportunity to take a crack at a new assignment requiring an all-out effort in some new direction is probably the most important single source of growth in most people's lives. Some few years ago, a study at International Harvester pointed up the fact that every member of a key group of executives had reported that a "break"—a heavy and unexpected assignment requiring ingenuity and great effort to perform—had been prominent in pushing him up the ladder. It is something of this sort I have in mind here.

The rotation principle, if effectively bolstered by review, can be an excellent way to achieve this kind of experience. The review process should call special attention, however, to the new

content involved in the job. Any conscious effort to drop the new areas of responsibility should be open to evaluation or the new area will never be honored except in the breech. On this point, I am reminded of an article that Douglas M. McGregor wrote about 10 years ago in which he described an engineering director who said, "I wish we could hire someone to take these personnel problems off my hands and solve them. . . . Why don't we get a competent man, give him freedom to hire whatever staff he needs, and then let him handle all these matters? An expert could do a far better job than we are doing and *leave us free to get on with our work.*"[2]

It is my guess that this man has gone through several experts by this time, still has human relations problems, and is still trying to get on with his work. It is not enough simply to provide new work—the experience must be evaluated if it is to become a positive force in the development process.

New colleagues. The intellectual stimulus of new contacts is another surprisingly effective spur for the man who seeks to grow. New ideas, new points of view, coupled with the opportunity to re-examine old ideas provide the kind of experience that should be readily available. Unfortunately, people are always more comfortable within their own frame of reference, and engineers particularly so. A setting must often be arranged to allow the most effective kind of personality intermix to take place. Seminars and meetings are always good for this purpose, provided the curriculum is right and the participant wants to learn. The jolt of discovering that others do not even speak one's language can be either refreshing or terrifying. Or it can produce nothing at all but a condescending nod toward the unenlightened. The latter is the most neutral response and is perhaps the engineer's most frequent route.

New habits. At MIT, we have been struck by the great hunger of technically trained personnel for non-technical material. Our executive development groups find rigorous study and discussion of materials on economics, law, political science, psychology, and the humanities a highly invigorating pursuit. It involves a setting and a pace. Reading Machiavelli's *The Prince* can be only a literary experience and an unlikely one at that. It is something else again when it provides a starting point for a group discussion of such questions as, do the ends justify the means? Is "fear" more effective than "love" in controlling subordinates? Actually, instilling new habits is always a painful experience for all of us. Yet, once achieved, they almost always produce new insights. Reading and reflection, discussion and debate, are easily crowded out of the busy engineer's daily schedule. Yet, if he can somehow build them into his life, new paths of growth open up.

New situations. Here, of course, I refer to the experience of observing and even participating in new surroundings. A visit to another plant

[2] D. M. McGregor, "The Staff Function in Human Relations," *Journal of Social Issues*, Vol. 4, 1948.

can be either a walk past another phalanx of automatic screw machines or an opportunity to make new interpretations of productive resources. It takes self-discipline and self-appraisal to get the most from such situations but the opportunity is there for those who will take it.

Obviously, these four opportunities for development overlap. Each of them, it will be noted, represents an experience that offers only the opportunity for broadening—not a guarantee. It will also be noted that they all imply change—the essential to growth. Clearly, it follows that it is difficult—if not impossible—for most organizations to provide all these opportunities within their own confines.

It should also be added that, since these opportunities are only opportunities, the first prerequisite for their effective utilization is the individual's interest in this process for himself. If there is no involvement on his part, no awareness of the opportunity presented, it will pass unused. If it is used, the fertile mind cannot help but find it valuable in stimulating the innovative approach so important to effective management.

In sum, then, the job of the top executive is to grasp the total relevance of the picture before him and make decisions that will guide the organization to its goal. Those critics who say that the engineer is not broad enough for this task mean that he dismisses some of the relevancies as irrelevant. Yet we at MIT, for example, continue to believe that the engineer-trained mind is excellent basic training for the managerial role. The engineer is superbly equipped to apply the logic of analysis to business data. He has all the tools—the problem is that he too often tends to exclude the illogical and intangible from his thinking. When his eyes are opened to the fact that business embraces a whole range of problems that cannot be solved by the technical approach, he has an edge over his non-technical colleagues that they find hard to equal.

Effects of the Dollar Minimum Wage

THE INFLUENCE of the $1 minimum wage on the wage structure in five selected industries—cigars, fertilizer, sawmill, seamless hosiery, and wooden containers—is shown in a recent Bureau of Labor Statistics study. Wage rates which prevailed before March, 1956, when the new minimum went into effect, are reported along with those paid immediately afterward and a year later.

Until March, 1956, the largest proportion of workers in four of the industries studied earned between 75 and 99.9 cents. In the fifth industry—cigars—44 per cent earned between $1 and $1.25. Immediately after the wage floor was raised, rates in all the industries ranged overwhelmingly within the $1 to $1.25 bracket. Only slight increases were reported, however, for the following year.

From the interviewer who proved a past master of the silent treatment to the man who never stopped talking long enough to catch his breath, here is a gruesome array of company representatives who failed to make the grade at Cornell last spring.

What Students Think of Campus Recruiters

EDWARD M. KRECH, JR.

REGARDLESS OF THE dips and crests in the business outlook, the search for executive talent goes on—and the most important source of new talent is still the college campus. Though campus recruiting may not be so fiercely competitive as it was, say, two years ago, the company out to hire an outstanding senior is by no means in the position of being able to pick and choose. If it is worth the company's while to do any recruiting at all, it had best start with the premise that not all the selling must come from the student's side.

Actually, of course, a campus interview is a two-way selling job. While the candidate, naturally, must put his best foot forward, the recruiter—especially when he is bidding for top men—is equally under scrutiny. By the time the interview is over, has he presented a picture of the company calculated to fire the enthusiasm of an ambitious young man?

One answer to that question may be forthcoming from the writer's experience recently in the process of finding a job through the Cornell Placement Service. Though during his five months of interviews he met some recruiters who did an excellent job, he encountered far more who did more damage to their company's reputation than any amount of advertising and publicity could counteract.

Curious to know whether his experience had perhaps been singularly unfortunate, the writer then made a survey of the graduating class of the Cornell Graduate School of Business Administration. The 36 men who responded to the questionnaire were all candidates for the degree of Master of Business Administration or Master of Public Administration. They had attended a number of different undergraduate schools and majored in a wide range of subjects. Altogether, they had taken part in 472 interviews—an average of more than 13 each. Despite their varied backgrounds and

specialties, their reactions to their interviewing experiences were remarkably similar—and amply bore out the writer's own personal impressions.

Admittedly, this was a small and doubtless not very scientifically chosen sample. Possibly other graduating classes at other schools would report entirely different reactions. Nevertheless, the replies from this particular group of students were sufficiently clear cut to offer, it is felt, some pointers to companies wondering why—handsome recruiting brochures and competitive salary offers notwithstanding—they are somehow failing to attract young men of the caliber they are looking for.

The Men They Sent

It should go without saying that the single most important influence in shaping a student's impression of a prospective employer is the man who interviews him. Everything the recruiter says (or doesn't say), his way of expressing and comporting himself generally, all leave their mark. Yet in their choice of the man they sent to represent them, many companies made the most flagrant blunders. This was true not only of smaller firms but also of some large ones with otherwise excellent reputations.

Thus, one large company manufacturing heavy equipment sent along an older man who seemed to have been chosen merely because he happened to be an alumnus of the school. His technique was simple—after a brief hello, he would stare fixedly at the student with a half smile for a minute or so. If the student tried to break the embarrassing silence with a question or comment, the recruiter would respond with an annoyed grunt. The rest of the meeting proceeded along the same lines—long periods of silence punctuated by occasional muttered questions and monosyllabic responses. The recruiter made it plain that he knew nothing about the company's job openings, or for that matter anything else about the company beyond the information provided in the brochures that the applicants had already read. Needless to say, this man was totally unsuccessful despite the excellent follow-up letters sent by the company.

Though this particular recruiter seemed to be a grotesque compound of all the undesirable qualities in a company representative, many of the same deficiencies were cited by students as typical of their interviews with other recruiters. The silent technique, for instance—if it can be called a technique—is by no means uncommon. Two-thirds of the students surveyed complained of the silent treatment; the majority said they had encountered it more than once. Perhaps the recruiter who employs it does so with the idea of putting the interviewee under pressure to ask questions, express his views, and generally reveal his personality. If so, this is hardly a procedure calculated to leave a favorable impression of the company. No man is at his best under stress—and this kind of treatment only leads to resentment on the part of the applicant. An efficient recruiter should be able to draw out the student and observe his personality by using carefully

chosen questions and a few words of encouragement, instead of submitting him to an uncomfortable ordeal.

Know Nothings and Parrots

Again, one-third of the students said that they had come across recruiters whose knowledge of their companies was distinctly meager, while almost two-thirds had been interviewed by men who didn't know what job openings were actually available. Many of the students reported that they had encountered these deficiencies more than once—in some cases in as many as one-fourth to one-half of the recruiters they had met. The questions that were left unanswered were by no means out of the way—they were the kind that any reasonably intelligent college senior who had done a little research on the company might ask.

At the other extreme is the recruiter who proves a mine of information on the facts freely available in the company's recruiting brochure. If an applicant is astute enough to be considered for a good job, it can usually be assumed that he will have boned up on company literature before his interview. In fact, every one of the students surveyed claimed to have done this, and some had gone to the extra trouble of consulting the standard reference books. Yet many students reported having to sit and nod wearily while the recruiter went over company pamphlets, almost word for word, during the interview. The 20 or 30 minutes usually allotted for an interview are valuable to student and recruiter alike —there is no sense in wasting this time on the obvious. A few pointed questions at the beginning of the interview can readily establish how much basic information the applicant possesses. What is to be gained by repeating what he already knows? A brief summary of the facts is usually sufficient; the rest of the time can be used to discuss matters directly related to the applicant's specific qualifications.

Discussion, however, is a two-way process—the student expects to have his say, too. One representative of a well-known manufacturing firm barely stopped talking long enough to catch his breath during the entire interview. His dissertation had the carefully rehearsed sound, but not half the appeal, of a guided tour of Radio City. What was not a repetition of the facts in the company brochure was for the most part irrelevant to the type of job the student was seeking. For some reason or other, this recruiter repeatedly referred to his uncle, who had been with the company for 40 years. The significance of this particular piece of information was never made clear.

Again the survey showed that this wasn't an isolated case. Almost two-thirds of the students said they had encountered company representatives who monopolized the conversation and made it difficult to get a question, or even a word, in edgewise. Of course, it's understandable up to a point. The recruiter naturally feels pressed to impart a great deal of information in a limited period of time. But that surely only points up the need to eliminate the facts already covered in the company's brochure, and the desirability

of cutting down the sales talk to a minimum.

Overselling on the part of some recruiters was another commonly cited complaint. One-third of the students surveyed said that interviewers had obviously exaggerated the company's advantages. The student who has done a fair amount of research before the initial interview can usually spot any stretching of the facts. After all, many students have already had some contact with the business world and are not so naive as some recruiters suppose. Certainly, patent exaggeration will quickly break down any rapport that might otherwise have been established between the recruiter and the student, and generate suspicion about the company as a whole.

Hardly a rarity, either, is the recruiter who, after a cursory greeting, takes care to impress upon the student what a favor he is bestowing on him by giving him some of his valuable time. This type is apt to stress that he is interviewing more than a hundred people for a single opening. Sometimes he will end up by admitting that he has no intention of hiring, but is seeing applicants "for the future" or "to establish good public relations."

Why set up an interview, only to drive home the point that the student is wasting *his* time? If there are no openings, the recruiter should make this point clear before the interview is arranged, not use it as a weapon during the meeting. Certainly, if the aim of the interview is to cement good public relations, this technique would hardly seem to be the right one.

Lowest man of all on the totem pole, however, is the recruiter who hasn't read the résumé that the student has taken the trouble to mail him in advance. A number of students commented about having to sit and wait while the recruiter dug out their résumé and proceeded to read it. Nobody objects to a quick skimming of reference material at the start of an interview, but it is surely not too much to expect an interviewer to have prepared his material beforehand. The reason a student sends in a résumé in advance is to save interviewing time. He is at least entitled to the courtesy of a preliminary reading. Yet, 10 out of the 11 students who said they had mailed résumés beforehand reported that they had had to wait during the interview while the résumé was read for the first time. This happened not once, but in a high percentage of all the interviews among this group.

The Compleat Recruiter

The picture given of the recruiter thus far has been a negative, and therefore perhaps a distorted, one. Of course, there are good interviewers as well as bad ones. But weaknesses cannot be overcome until they have been recognized. Perhaps this emphasis on the negative aspects of current recruiting practices can lead the way to some positive solutions.

It can't be emphasized too much that the company's choice of a recruiter is the prime factor in the success of its campus campaign. Again and again, in response to the question, "What recruiting practices impressed you as

being particularly good?" some characteristic of the recruiter was mentioned. Listed most often were good personality and friendliness. Honesty and frankness were also considered essential. There was a strong feeling that while a recruiter shouldn't hesitate to "talk turkey," he should not conduct himself in an overbearing or antagonistic manner.

In addition, as the survey made clear, a good recruiter should arm himself with knowledge—about his company's plans, about the part the applicant may play in the organization of the firm, and about the background and qualifications of the student, as shown in his scholastic record and his job experience.

It may be of interest that the company most often mentioned as doing a particularly outstanding recruiting job was Procter & Gamble. In all, 17 recruiters from different divisions of P & G visited the campus at one time or another during the spring. Although each division was responsible for its own recruiting, there was excellent coordination among the various P & G representatives, and it was common practice for a divisional representative to pass a student on to one of his colleagues, when the student's qualifications seemed more suitable for the other division.

Actually, the impressive thing about the P & G campaign was not the scale on which it was conducted, but the personalities of the interviewers themselves. They had all obviously been trained for the job, and some of them were men quite high up in the company. They were businesslike, yet friendly; they knew the facts, but they also knew how to put the students at their ease. They neither forced nor overtly dominated the discussion. Most of the students were favorably impressed with the way the P & G people went about selling the company without pressure or exaggeration—and at the same time gave each student the opportunity to sell himself.

Of course, few companies can afford to recruit on the same scale as Procter & Gamble. But any recruiter, even if he is the only one his company is able to send, can follow the same practices.

After the Interview

When the interview is over, what then? It would seem almost superfluous to add that any promises made to the student should be scrupulously adhered to. Yet almost two-thirds of the students taking part in the survey reported that some interviewers had reneged on their commitments. There were cases where pledges to write or call within a certain period of time were ignored without a word of explanation. Offers of trips or even jobs were later retracted. No doubt the uncertain business situation was partly to blame, but better planning could have avoided misunderstandings of this kind. If unforeseen events do necessitate a change in plans, a prompt letter of explanation can at least help to salve the wound. When a commitment is simply ignored altogether, the student is not likely to forget it for a long time to come.

Many companies with large engineering staffs have been plagued in recent years by inequities in their wage and salary programs for technical personnel. Here's how Vertol Aircraft went about securing tighter administrative control in this area.

A Tested Approach to Engineer Salary Administration

MORTON ADELBERG

Supervisor of Wage Administration
Vertol Aircraft Corporation

In common with most other companies employing technical staffs, the Vertol Aircraft Corporation has been confronted in recent years with the problem of maintaining administrative control over the wage and salary program for engineering personnel. More specifically, we were handicapped by the following undesirable conditions:

- Lack of sound, consistent criteria for determining in-hire rates.
- Promotions and transfers without well-defined changes in duties and responsibilities.
- Confusion as to the factors upon which performance reviews and merit increases were based.
- Personnel misclassifications.
- Questionable reliability of the data obtained from engineering salary surveys.

Consequently, in August, 1956, the company initiated a comprehensive review of its classification and pay system covering approximately 500 engineers. (Non-technical positions were not included.) Our approach may perhaps afford some useful guidelines for other companies in a similar situation.

At the outset, we were aware that the effectiveness of any recommendations resulting from the study would hinge upon developing realistic job specifications and establishing rate ranges that accurately reflected the successive levels of job difficulty within the various engineering specifications. Thus, the study had three main objectives:

1. To define the engineering specializations.
2. To identify the levels of job difficulty, and develop descriptive standards for each.
3. To determine the pay range progressions.

We approached the first problem from a job family point of view, grouping the various specializations

JOB FAMILY	JOB SPECIALIZATION
1. Project Groups	Project engineering Design engineering Production design Design checking Project staff
2. Design Analysis	Design staff Weights engineering Aerodynamics Dynamics Computing Data analysis
3. Structures	Stress engineering Structural test Materials engineering Chemistry Metallurgy
4. Flight Test	Test engineering Maintenance engineering Instrumentation Blade tracking Data reduction
5. Administration	Division administration Project administration Drawing controls
6. Research	Operations research

EXHIBIT 1

Engineering Job Families and Specializations

into broad categories which corresponded to the major departments of our Engineering Division. We were thus able to identify 25 specializations, grouped into six families. This breakdown is shown in Exhibit 1.

Functional definitions of each specialization were then prepared in sufficient detail to insure that each engineering job in the company could be assigned to one of them. The Aerodynamics specialization, for example, was defined as follows:

> Aerodynamics: Preparation of aerodynamic analyses and aerodynamic design criteria related to performance, configuration, air loads, stability and control. Development of new and improved methods for aerodynamic analyses. Preparation of aerodynamic reports on flight or wind tunnel data. Provision of consultative advice to Engineering personnel on aerodynamic problems. Preparation, coordination and analysis of aerodynamic flight test data.

Developing the Grade Level Standards

After we had defined the job families and the specializations, interviews with line supervisors were held to obtain information about the specific jobs. The supervisors were asked to describe the duties and responsibilities of each of their subordinates and to rank these activities according to the academic training, job knowledge,

analytical ability, skill in personal contact, and amount of supervision required. Detailed summaries of the interviews—classified by job specialization and organizational location—were then used to prepare descriptions for all jobs, along with functional job titles. The descriptions were then submitted to the supervisors for review and approval of content.

The next step was analyzing the job descriptions to determine the levels of job difficulty in each specialization. The results showed very little variation in levels of difficulty among the various specializations—engineers in all the specializations were doing work at comparable levels of difficulty.

We found that 10 levels, five of which were supervisory in nature, would cover all the jobs identified by the supervisors in each of the 25 specializations.

The characteristics of each level of

Job Title: Engineer I **Code: E1C24**

Grade: 24

1. **Work at this level is characterized by independent application of standard techniques; or the performance under supervision, of assignments which involve the application of new methods in solving Engineering problems. When standard procedures are available, the Engineer I is required to determine which procedures are applicable to a given problem. On assignments which require new techniques, the Engineer I works closely with Engineers of higher grade who provide him with detailed explanations regarding new phases of the problems assigned.**

2. **The Engineer I is expected to exercise independent judgment in the selection of data and make recommendations which are important for successful completion of a project.**

3. **The Engineer I is required to exercise some originality in accomplishing assigned work. Technical guidance and assistance is usually general in nature and must be adapted by the incumbent to problems under consideration.**

4. **Completed work is reviewed for adequacy of supporting data and soundness of conclusions. It is generally assumed by the supervisor that the techniques and procedures involved have been correctly applied and therefore a review of details is seldom required.**

5. **The Engineer I should have acquired an ability to complete designs; to develop details of a test procedure and to plan and carry out test programs; to check assemblies for fit, clearance and proper function; to determine the effect of specification and drawing changes upon other related design drawings; to evaluate design drawings by application of formal analytical formulas and techniques; and to determine the need for changes in design detail required to achieve improved strength, weight, aerodynamic or dynamic characteristics.**

Education:
Baccalaureate degree from a recognized college or university or an acceptable equivalent in formal training and/or experience.

Experience:
A minimum of three (3) years of experience related to the field of specialization.

EXHIBIT 2

A Grade Level Standard For Engineer I Classification

JOB TITLE	JOB TITLE ABBREVIATION	CLASSIFICATION CODE	PAY GRADE	JOB FAMILY CODE NUMBER	JOB SPECIALIZATION ABBREVIATION	DESIGN STAFF	WEIGHTS	AERODYNAMICS	DYNAMICS	COMPUTING	DATA ANALYSIS	STRESS	STRUCTURAL TEST	MATERIALS ENGINEERING	CHEMISTRY	METALLURGY
				JOB FAMILY		DESIGN ANALYSIS						STRUCTURES				
						DG-STF	WTS	AERO	DYN	CMP	D-ANL	STRESS	STR-TS	MTS-EN	CHEM	MTG
						01	02	03	04	05	06	07	08	09	10	11
ASSOCIATE ENGINEER	ASE	A	20													
ENGINEER II	E2	B	22													
ENGINEER I	E1	C	24													
SENIOR ENGINEER II	SRE2	D	26													
SENIOR ENGINEER I	SRE1	E	28													
SUPERVISING ENGR V	SUE 5	F	25													
SUPERVISING ENGR IV	SUE 4	G	26													
SUPERVISING ENGR III	SUE 3	H	27													
SUPERVISING ENGR II	SUE 2	I	28													
SUPERVISING ENGR I	SUE 1	J	29													

EXHIBIT 3

Engineering Classification Chart (Excerpt)

difficulty were then expressed in the form of a standard to which an administrative job title was assigned. The levels are as follows:

Non-supervisory Level	*Title*
1	Associate Engineer
2	Engineer II
3	Engineer I
4	Sr. Engineer II
5	Sr. Engineer I
Supervisory Level	
1	Supervising Engineer V
2	Supervising Engineer IV
3	Supervising Engineer III
4	Supervising Engineer II
5	Supervising Engineer I

A typical level standard is shown in Exhibit 2.

Setting the Rate Ranges

Before determining what the pay ranges should be, we considered the following criteria of an adequate rate structure:

1. The dollar spread should be large enough to insure that wage and salary rates for specific jobs are competitive.

2. The rate ranges should be wide enough to avoid hairline distinctions between succeeding levels of job difficulty, yet narrow enough to insure adequate control of average rates for specific job classifications.

3. There should be a sufficient number of pay grades to accommodate all levels of job difficulty.

The rate structure in use at the time of the study satisfactorily met each of these criteria. It consisted of 11 pay grades with average minimum to maximum ranges of approximately 45 per cent, and midpoint to midpoint ranges of approximately 10 per cent. Our problem then was to assign the 10 difficulty levels to pay grades which were already established. The controlling factor here was the distribution of rates currently being paid to our engineers. It was our intention to maintain existing rate differentials except in cases where our study revealed definite inequities.

Thus, each employee's work assignments, performance, and qualifications were reviewed to determine the job family, specialization, and difficulty level in which his position properly belonged according to our definitions and standards. The distribution of actual pay rates was then calculated for each difficulty level, and compared with the rate ranges of the existing pay structure. In this way, the rate range selected for a given difficulty level encompassed the actual rates paid to employees whose jobs matched the standards for that level.

When the review was completed, we set up a Coordinate Job Classifications Chart (see Exhibit 3) containing all the information needed to classify any engineering employee. For example, an employee performing aerodynamic work best described by the standard for the Engineer II level would be classified as follows:

Title	*Grade*
Engineer II (Aerodynamics)	22

The spaces provided in the chart are used to record such data as the number of employees and the weighted av-

erage rates in the various grades and specializations. Provision has also been made for the machine coding of these classifications so that mechanical tabulations of personnel data by specialization and pay grade level can easily be run in any combination desired. Thus, the code number for the classification given in the foregoing example would be B-03-22.

Selling the Program

At Vertol, we follow the axiom that a new program, no matter how well planned, cannot succeed unless it is understood and accepted by the operating supervisors whom it will affect. Probably the best method of accomplishing this is to have them participate in developing the program itself. As has been said, the supervisors provided the specific job information upon which our grade level standards were based. In addition, special group meetings were held, at which representatives of both the personnel and engineering divisions explained the program to the supervisors and answered their questions. It was particularly important that they thoroughly understood how to use the grade level standards as their basic tool in recommending reclassifications, and merit increases, and in determining manpower requirements.

In conclusion, it should be stressed that the program described here is merely one approach to the problem of engineering salary control, and is not offered as a panacea. However, its successful operation during the past two years at Vertol Aircraft Corporation indicates that a sound classification and pay structure, supported by a thorough job analysis, maintained by periodic rate surveys, and geared to the particular needs of the organization, can provide the necessary framework for effective administration and control of engineering salaries.

Early Career Choice and Earning Power

THE EARLIER college students choose their careers, the higher their future earnings are likely to be, according to a recent survey of New York University alumni of 1946, 1951, and 1956. The survey, which covered more than 4,000 business, education, liberal arts, and engineering graduates, also found a relationship between the time a student decides on his life work and whether or not he remains in the field of his choice.

The highest average monthly earnings—$650—were reported by those who set their career goals in their first year of college. Those who decided in their second year are averaging $580; those in their third year, $565; those in their senior year, $550; and those who chose careers after graduation, $530.

Of the respondents who decided on their careers during their four years of college, 13 out of 15 are now working in the same fields. Only five out of seven of those who did not make up their minds until after graduation are still in the fields they first selected.

personnel *bookshelf*

HANDBOOK OF PERSONNEL MANAGEMENT AND LABOR RELATIONS. By Dale Yoder, H. G. Heneman, Jr., John G. Turnbull, and C. Harold Stone. McGraw-Hill Book Company, Inc., New York, 1958. 1,228 pages. $12.50.

*Reviewed by Edith Lynch**

This book is an extremely able compilation of short discussions on practically every subject in the labor relations and personnel field. It is based partly on the answers that have been given to inquiries at the University of Minnesota Industrial Relations Center over the past 10 or 12 years. As such, it offers a realistic approach to the problems that personnel and industrial relations executives are continuously encountering in their day-to-day activities.

Though the format of the book is rather formidable, it is well indexed and can be used as a ready reference. For straight reading pleasure, perhaps, it makes somewhat heavy going. However, the reader will find himself reading much more extensively than he had planned when he started to "look up" a particular subject.

Besides being practically all-inclusive as regards subject matter, the book is well documented by an extremely interesting array of writers. In concept, it differs somewhat from the usual compilation. There is an over-all approach to each subject with illustrations from other authors drawn in to highlight the writer's own thinking. Thus, several points of view are to be found, for example, in the section on promotion, and many more on seniority and the nature of the supervisor's job. Although this is, in some respects, a "teaser" approach, it gives the interested reader the opportunity to follow through at some length on his own.

The names of the companies where the practices described have been tried are also given throughout the book. These, too, are very well indexed so that any one wanting to find out how a particular company does something can readily do so.

In some respects, the book may possibly irritate some readers. Its very comprehensiveness is likely to be a deterrent to anyone who is looking for an exhaustive treatment of a particular topic. Some of the tables are rather old for this fast-moving field. It may be questioned, for instance, whether executives are reading the same books and periodicals today as they were reading in 1950, as one of the tables shows. Again, the listing of wage rate information includes a wage rate report published by The National Foreman's Institute which has been discontinued for several years. A bit more careful updating and checking of some source material might have proved ad-

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vantageous. In view of the wealth of material contained in the book, these are but minor criticisms, however.

In this reviewer's opinion, Messrs. Yoder, Heneman, Turnbull, and Stone are to be complimented on having carried out a tremendous job. This is a volume that has long been needed. Equally useful for the student looking for a definition of such terms as the median and the mean, and for those who want to explore such complex topics as multiple correlation or test validation, it should serve as a wonderful work of reference not only for the newcomer to the personnel field, but also for the skilled and experienced industrial relations executive.

MENTAL HEALTH IN INDUSTRY. By Alan A. McLean and Graham C. Taylor. McGraw-Hill Book Company, Inc., New York, 1958. 262 pages. $6.50.

*Reviewed by Saul W. Gellerman**

The esoteric world of psychiatry may seem far removed from the hard facts of everyday business life but, as this book makes clear, industry faces a multitude of mental health problems in almost every area of its operations. The authors are careful to point out that they have "no cure-all, no panacea, no easy solutions." Nevertheless, they cast a strong light on some hitherto murky problems, and they offer some highly useful information for the executive who wants to know what psychiatry can contribute to industry.

Industrial psychiatry is only beginning to expand, and this book is basically a plea for more of it. The authors make a strong case. For the job of the psychiatrist in industry is by no means limited to treating those relatively few cases of disabling emotional disorders among employees. Their major job is "preventive psychiatry"—nipping incipient emotional collapses in the bud, helping executives and foremen create an atmosphere conducive to the maintenance of morale, personal efficiency, and mental health. This is as much an organizational and educational job as a clinical one.

Happily, this is not a text in abnormal psychology masquerading as executive must reading. It is not a shocker that dwells morbidly on the pressures and tensions of business life. The emphasis throughout is on health, and ways to maintain it. The authors make it clear that while the psychiatrist can advise management and handle certain highly sensitive cases himself, the responsibility for maintaining emotional health throughout a company rests squarely on the executives who run it. This is why the book deserves to be widely read.

There is an especially valuable introductory section which reviews the fundamentals of personality development, and the mechanisms by which people deal with emotional pressures. This is a succinct, non-technical summary of what every executive should know about psychiatric theories.

The succeeding sections of the book deal briefly with the emotional problems that tend to crop up at different job levels, from top executive to the hourly employee. There is a particularly thought-provoking chapter on "human relations," pointing out that some of these techniques, when applied too glibly or indis-

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criminately, can be downright harmful. Alcoholism gets a quick but information-packed review. The chapter on accidents and compensation will be a real eye-opener for many executives, with its emphasis on the psychological factors that complicate industrial injuries. There is also some very helpful advice on how to smooth the return to work of the worker who has had an emotional illness.

Since the book is a pioneer study of an as-yet undeveloped field, it is inevitable that it should have some weaknesses. Chief among these is the fact that the authors make no attempt to suggest ways in which the usefulness of a psychiatric program may be objectively estimated. Measurements in the field of mental health are notoriously difficult to make, and psychiatrists have traditionally shied away from them. But the most benevolent management is entitled to some evidence that its money is being well spent, other than the assurance of professional experts and the common-sense assumption that man-days are being worked which might otherwise have been written off as disability payments. Studies can be designed and worked out which offer some indication of the efficacy of a mental health program, and the book would have been stronger if research of this kind had been discussed.

At times, also, the authors seem to assume that executives and supervisors have, as a group, an extraordinary degree of personal insight and emotional control. Their prescription for resolving the tensions that sometimes accompany executive life is essentially a form of self-analysis: recognition of the difficulty and a redefinition of personal values by the afflicted executive. Men with enough grip on themselves to accomplish such a feat of emotional gymnastics are unlikely to get so far out of touch with their own basic values in the first place.

Again, in a discussion of merit ratings, the authors note that a frank talk between a worker and "an informed and understanding supervisor" is the best way to make constructive use of the rating. It undoubtedly is; but if there were an abundance of informed and understanding supervisors around, we probably wouldn't need "human relations" programs or merit ratings either, for that matter. All these less-than-perfect systems have had to be contrived precisely because executives and supervisors are also considerably less than perfect.

But these are minor points, and by and large the book is a soundly conceived, easy-to-read treatment of a difficult and important subject. Psychiatry has been assuming an increasingly important role in general medicine, as research continues to highlight the close relationship between emotional and physical health. Inevitably, psychiatry will come to play a more important role in industrial medicine, and even in the broader field of personnel policy. Executives who want to keep abreast of this movement will find that *Mental Health in Industry* gives them plenty to think about.

Briefer Book Notes

(Please order books directly from publishers)

MILLWAYS OF KENT. By John Kenneth Morland. The University of North Carolina Press, Chapel Hill, N.C., 1958. 291 pages. $5.00. The third in a series of field studies of a small Southern community, this report describes the way of life and social organization of mill workers and their families. Economic life, family life, education, religion, and personality development are exaimed as well as the relationships with other groups in the community.

PRE-EMPLOYMENT DISABILITY EVALUATION. By William A. Kellog. Charles C. Thomas, Springfield, Ill., 1957. 155 pages. $10.50. A comprehensive manual for medical examiners and employers, it briefly describes the various diseases, conditions, and disabilities encountered in examining applicants for employment, and offers guidance as to whether an applicant with a given condition should be approved, rejected, or approved with restrictions. The restrictions for each type of physical limitation are specified.

ASSESSING MANAGERIAL POTENTIAL. The Foundation For Research On Human Behavior, Ann Arbor, Mich., 1958. 83 pages. $3.00. The discussion summarized in this report of a seminar conducted in Ann Arbor and Ardsley-on-Hudson is concerned with improved methods of appraising and predicting the effectiveness of executives. Exploratory research leading to improved criteria of managerial effectiveness, management assessment techniques, and practical problems in behavioral research are among the topics covered.

MODULAR MANAGEMENT AND HUMAN LEADERSHIP. By Frank Pieper. Methods Press, Minneapolis, Minn., 1958. 288 pages. $6.50. Addressed to foremen and supervisors, this practical manual discusses such matters as orienting and training workers, organizing and scheduling work, problem solving, building team feeling, evaluating workers, and using staff services. The author applies various current psychological concepts to concrete work situations.

GROUP DISABILITY INSURANCE. By Jesse Frederick Pickrell. Richard D. Irwin, Inc., Homewood, Ill., 1958. 255 pages. $5.00. One of a series of studies sponsored by the Huebner Foundation for Insurance Education, this report analyzes group accident and sickness insurance written by commercial companies. It traces the development of the coverage and examines existing contracts, legislation, sale, premium rates, reserves, underwriting, and claims. A specimen group disability master contract, and a model group sickness and accident insurance bill are appended.

THE SUPERVISION OF PERSONNEL: *Second Edition*. By John M. Pfiffner. Prentice-Hall, Inc., New York, 1958. 500 pages. $6.50. This revised and enlarged edition contains the findings of a number of new research studies, especially in the chapters on motivation. The section on selection and training has been almost entirely rewritten and expanded from two to four chapters, and study questions have been appended to each chapter.

PROCEEDINGS, NINETEENTH CONFERENCE, TEXAS PERSONNEL AND MANAGEMENT ASSOCIATION. Texas Personnel and Management Association, The University of Texas, Austin, Tex., 1958. 91 pages. $2.00. A collection of papers presented at the 1957 Texas PMA conference covering labor relations, effective management, motivation, the personnel function, and religion in business.

REPORT, SILVER BAY CONFERENCE ON HUMAN RELATIONS IN INDUSTRY, 1957. Edited by Lucille E. Hein. Industrial Program Committee, National Board of YMCA's, 291 Broadway, New York 7, N. Y., 1958. 44 pages. Gratis. This report on the 39th session of the Silver Bay Conference contains condensations of addresses and highlights of group meetings on a variety of topics, including automation, communications, appraisal, counseling, employee development, and the challenge of change.

LONGER LIFE. By George Soule. The Viking Press, Inc., New York, 1958. 151 pages. $3.00. An examination of present employment practices and social security legislation in the light of the growing social and economic problems posed by the lengthening life span and the increasing proportion of older citizens in the population.

A COMPREHENSIVE DICTIONARY OF PSYCHOLOGICAL AND PSYCHOANALYTICAL TERMS. By Horace B. English and Ava Champney English. Longmans, Green and Co., Inc., New York, 1958. 594 pages. $8.00. A guide to the use and meanings of terms in the psychological sciences, this dictionary is primarily designed for the graduate student, research worker, and writer in the fields of psychology, psychoanalysis, psychiatry, social work, guidance, and education.

CASES ON HUMAN RELATIONS IN MANAGEMENT. By Richard P. Calhoon, *et al.* McGraw-Hill Book Company, Inc., New York, 1958. 444 pages. $6.00. Intended for text or supplementary use in schools or departments of business administration, this collection of 75 case studies is designed to improve the student's analytical and decision-making skills. The human relations problems presented are drawn from a variety of business situations including their functional location within marketing, production, finance, control, personnel, research, and general management.

PROCEEDINGS OF TENTH ANNUAL MEETING OF INDUSTRIAL RELATIONS RESEARCH ASSOCIATION. Edited by Edwin Young. Industrial Relations Research Association, University of Wisconsin, Madison, Wis., 1958. 341 pages. $3.50. These proceedings contain some 40 papers grouped under various heads. Of particular interest to the management reader are the reports on intra-company research in industrial relations, current studies in economic security and labor economics, and current researches in personnel administration.

CLASSROOMS IN THE FACTORIES: *An Account of Educational Activities Conducted by American Industry*. By Harold F. Clark and Harold S. Sloan. Institute of Research, Fairleigh Dickinson University, Rutherford, N.J., 1958. 139 pages. $3.75. A report on industrial educational programs based on a questionnaire survey of 500 leading corporations, interviews, and descriptive material. The authors describe the subject matter and teaching methods used in five areas of training—orientation, managerial and supervisory, technical and professional, human relations, and general education. Various policies for cooperating with educational institutions are evaluated, as well as the impact of education in industry on society as a whole.

PROBLEMS IN LABOR RELATIONS. By Benjamin M. Selekman, *et al.* McGraw-Hill Book Company, Inc., New York, Second Ed., 1958. 702 pages. $8.00. This revised edition of a casebook in labor relations first published in 1949 offers a number of new cases illustrating recent developments in the steel and automobile industries, as well as in smaller industries such as food, soap chemicals, and oil. The cases portraying timeless situations have been retained.

VOCATIONAL TRAINING DIRECTORY OF THE UNITED STATES. Compiled by Nathan M. Cohen. Potomac Press, Arlington 1, Va., Third Ed., 1958. 227 pages. $2.95. This revised and enlarged edition of a directory first published in 1953 contains information about more than 7,000 private and public schools offering semi-professional, technical, and trade courses. The fields covered have been expanded to include health service training, such as nursing, medical technology, and medical library work.

EXECUTIVE MANAGEMENT OF PERSONNEL: *Getting Results from People.* By Edward C. Schleh. Prentice-Hall, Inc., Englewood Cliffs, N. J., 1958. 208 pages. $5.65. This handbook for personnel managers discusses the various personnel functions in terms of the result desired, which the author defines as "the best return on the payroll dollar in the long run." He draws on numerous examples to illustrate his practical approach to such matters as the handling of supervisory problems, union negotiations, training programs, incentive systems, and benefit plans.

SMALL CITY JOB MARKETS: *The Labor Market Behavior of Firms and Workers.* By Richard C. Wilcock and Irvin Sobel. Institute of Labor and Industrial Relations, University of Illinois, Urbana, Ill., 1958. 170 pages. $3.50. A report on two local labor market area studies—one conducted in Kankakee, Ill., and the other in four Illinois and Missouri communities where the same shoe firm was the major industrial employer. Using questionnaires and interviews, the authors investigated the process whereby local labor forces adjust in size in response to changes in the demand for labor. Notes on the sampling techniques and the questionnaires used are appended.

THE DIRECTION OF RESEARCH ESTABLISHMENTS: *Proceedings of a Symposium held at the National Physical Laboratory.* Philosophical Library, New York, 1957. $12.00. Among these proceedings presented at an international symposium on the direction of research establishments are papers on creativity and the scientist, budgets and administrative controls, staff selection and assessment, staff groupings and the flow of authority, and the use of technical information in the smaller research establishment.

ADMINISTRATION OF SALARIES FOR ENGINEERS AND SCIENTISTS; INTANGIBLE REWARDS FOR ENGINEERS AND SCIENTISTS. By John W. Riegel. Bureau of Industrial Relations, University of Michigan, Ann Arbor, Mich., 1958. 116 pages, paperbound, $3.50; 93 pages, paperbound, $2.50. These two reports (which are also available in a single cloth-bound volume, price $6.00) present the initial findings of a two-year study of the use, motivations, and job satisfactions of engineers and scientists in eight manufacturing and two public utility companies. In all, 44 engineering and research executives, 90 supervisors, and 276 non-supervisory professional employees were interviewed. The respondents' reasons for satisfaction or dissatisfaction with their salaries and intangible rewards are fully discussed, and various ways to improve these incentives are suggested by the author.

LABOR ECONOMICS AND INDUSTRIAL RELATIONS. By Robert D. Leiter. Barnes & Noble, Inc., New York, 1958. 320 pages. $1.95. A second edition of a College Outline Series text previously published in 1952 under the title *Labor Problems and Trade Unionism*. The statistics and factual material have been brought up to date, several sections have been rewritten, and others have been modified in the light of recent developments. The general organization of the book under five main areas—problems of labor economics, labor organization, collective bargaining, labor disputes, and social security—remains unchanged.

THE TRAINING OF FEDERAL EMPLOYEES: *Personnel Methods Series No. 7*. U.S. Civil Service Commission, Washington, D. C., 1958. 146 pages. 45 cents. An outline of employee training activities in Federal agencies. The pamphlet covers agency training policies, organization for training, training programs and methods, as well as major problems and recommendations.

EDITING THE SMALL MAGAZINE. By Rowena Ferguson. Columbia University Press, New York, 1958. 271 pages. $4.50. A how-to guide for editors of house organs, scholarly journals, and other publications of limited circulation. The author provides a comprehensive coverage of both the technical and executive editorial functions. An excellent manual that should be of particular help to the newly appointed editorial staffer with little or no previous journalistic experience.

LOYALTY AND SECURITY: *Employment Tests in the United States*. By Ralph S. Brown, Jr. Yale University Press, New Haven, Conn., 1958. 524 pages. $6.00. An analysis of loyalty and security tests for private and public employment. The author examines their efficacy in terms of the security hazards that exist, and questions the demand for loyalty tests in employment that is not "security sensitive." The legal issues involved are presented in non-technical terms for the general reader.

WORK MEASUREMENT AND INCENTIVES. By D. G. Lintern and R. J. S. Curtis. Pitman Publishing Corporation, New York, 1958. 168 pages. $5.00. An introductory textbook on work measurement and incentives. Among the topics covered are layouts, jigs and fixtures, materials handling and activity sampling, fatigue studies and human problems, job evaluation, merit rating, predetermined times, and training. A glossary, chapter summaries, and a clear, concise style enhance this highly readable discussion of a technical subject.

THE NEXT TWENTY YEARS IN INDUSTRIAL RELATIONS. Industrial Relations Section, Massachusetts Institute of Technology, Cambridge, Mass., 1958. 99 pages. $1.00. These papers presented at the Twentieth Anniversary Conference of MIT's Industrial Relations Section cover such topics as trends and future problems in collective bargaining, the utilization and development of high-talent manpower, and unions and union leaders of their own choosing.

TRADE UNION LEADERSHIP: *Based on a Study of Arthur Deakin*. By V. L. Allen. Harvard University Press, Cambridge, Mass., 1957. 336 pages. $6.00. An analysis of union leadership based on a study of the career of Arthur Deakin, the British labor leader. Starting with an examination of the situation in which Deakin found himself when he became head of the Transport and General Workers Union, the book proceeds to analyze his qualifications for leadership, his economic and political behavior, his role as administrator, and his handling of the union's particular problems.

HUMAN RELATIONS AND MODERN MANAGEMENT. Edited by E. M. Hugh-Jones. North Holland Publishing Company, Amsterdam, 1958. 256 pages. $5.30. The first in a series on industrial economics, this volume contains essays by British, Dutch, and American specialists in the field. Human relations and their implications for management are explored in three situations—among workers on the shop floor, when labor is organized, and at the highest level of management. A general theory of management, the factory as a social system, human relations, management and size, and the function of management are among the other topics discussed.

BASIC MOTION TIMESTUDY. By Gerald B. Bailey and Ralph Presgrave. McGraw-Hill Book Company, Inc., New York, 1958. 195 pages. $5.00. A manual on the use of a predetermined time system which relates all time data to a unit of motion called Basic Motion. The authors discuss such topics as arm reaches and moves, body motion, motion identification, and the development of elemental standard-time data. Special forms of standard-time data for clerical work are also included.

APPRENTICESHIPS IN AMERICA: *A Guide to Golden Opportunities in Industry*. By Harry Kursh. W. W. Norton & Company, Inc., New York, 1958. 176 pages. $3.95. This comprehensive guide to apprenticeships tells how to go about obtaining apprentice training in industry and government. The advantage of apprentice training, standard apprentice agreements and rates of pay, and types of registered apprentice programs are discussed in detail. Also included are sources of assistance in choosing an apprenticeship, a list of apprenticeable occupations by trade, directories of state and federal apprenticeships, and a list of major corporations with apprenticeship programs.

MOTION AND TIME STUDY: *An Introduction to Methods, Time Study, and Wage Payment*. By Benjamin W. Niebel. Richard D. Irwin, Inc., Homewood, Ill., 1958. 494 pages. $8.70. This revised edition of a textbook originally published in 1955 places greater emphasis on work sampling, indirect labor standards, curve plotting, and maintenance of standards. In addition, new material is included on such topics as creative thinking, decision-making techniques, human dimensions, process charts, sound control, and motion time analysis. New line drawings and illustrations have also been added.

THE HUMAN RESOURCES FUNCTION. By E. Wight Bakke. Yale Labor and Management Center, Yale University, New Haven, Conn., 1958. 24 pages. 20 cents. In this interesting paper presented at the 1958 annual meeting of the New York City Chapter of the Industrial Relations Research Association, the author examines what he calls "the human resources function" as a basic function of managment. As such, he points out, its tasks are similar to those of other basic management functions (sales, finance, production, and so forth) and can be classified as discovery and understanding, maintenance and development, utilization, and integration with other resources. Prevailing misconceptions of the human resources function are discussed in the light of the concept.

Publications Received

(Please order books directly from publishers)

SATISFYING THE SALARIED EMPLOYEE. Industrial Relations Division, National Association of Manufacturers, 2 East 48th Street, New York, N. Y., 1957. 64 pages. 50 cents.

THE 3 STEPS TO MORE SKILLFUL MANAGEMENT. By the Editors of *Nation's Business*. Nation's Business, Washington, D. C., 1958. Three 48-page booklets. 80 cents each.

RESOURCE TRAINING FOR BUSINESS, INDUSTRY, GOVERNMENT. Published for The Natural Resources Study Committee by The Conservation Foundation, 30 East 40th Street, New York 16, N. Y., 1958. 159 pages. Distributed gratis to a selected list.

A GUIDE TO PROMOTION AND PUBLICITY FOR AN EFFECTIVE INCENTIVE AWARDS PROGRAM. By the United States Civil Service Commission. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C., 1958. 57 pages. 40 cents.

HIGHLIGHTS ON YOUNG WORKERS UNDER 18. Bureau of Labor Standards, U.S. Department of Labor, Washington 25, D. C., 1958. 9-page bulletin. Gratis.

EMOTIONAL FACTORS IN MANAGEMENT PERFORMANCE. Stenographic brief of an address by J. Herman Mattson. Research Division, California Personnel Management Association, 2180 Milvia Street, Berkeley 4, Calif., 1958. 7 pages. $1.00.

SELECTED READINGS IN LEADERSHIP. Compiled by Comdr. Malcolm E. Wofe, USN, and Capt. F. J. Mulholland, USMC. U.S. Naval Institute, Annapolis, Md., 1957. 119 pages. $2.50.

COUNSELING USE OF THE STRONG VOCATIONAL INTEREST BLANK. By Wilbur L. Layton. University of Minnesota Press, Minneapolis 14, Minn., 1958. 40 pages. $1.25.

MANUAL OF EMPLOYMENT INTERVIEWING. By the Department of the Navy, Administrative Office. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C., 1957. 42 pages. 50 cents.

THE ECONOMIC ANALYSIS OF LABOR UNION POWER. By Edward H. Chamberlin. American Enterprise Association, Inc., 1012 14th Street, N.W., Washington 5, D. C., 1958. 48 pages. $1.00.

BETTER BUSINESS RELATIONS THROUGH PLANT TOURS. By the Business Relations Department, Chamber of Commerce of the United States, 1615 H Street, N.W., Washington 6, D. C., 1958. 20 pages. 50 cents.

GUIDELINES FOR EMPLOYMENT OF YOUNG WORKERS. Bureau of Labor Standards, U.S. Department of Labor, Washington 25, D. C., 1958. 5-page bulletin. Gratis.

HIGHER EDUCATION PLANNING AND MANAGEMENT DATA, 1957-58. By W. Robert Bokelman. Office of Education, U.S. Department of Health, Education, and Welfare. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., 1958. 102 pages. 60 cents.

EMPLOYMENT OUTLOOK FOR TECHNICIANS. Prepared by the Bureau of Labor Statistics, U.S. Department of Labor. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C., 1958. 28 pages. 25 cents.

TABULATION OF UNIONS REPRESENTING ENGINEERING AND TECHNICAL EMPLOYEES. Compiled by the National Society of Professional Engineers, 2029 K Street, N.W., Washington 6, D. C., 1958. 8 pages. $1.00.

A BIBLIOGRAPHY OF AMERICAN LABOR UNION HISTORY. By Maurice F. Neufeld. New York State School of Industrial and Labor Relations, Cornell University, Ithaca, N. Y., 1958. 64 pages. 45 cents (single copies gratis to residents of New York State).

ECONOMIC AND SOCIAL IMPLICATIONS OF AUTOMATION: *A Bibliographic Review*. By Gloria Cheek. Labor and Industrial Relations Center, Michigan State University, East Lansing, Mich., 1958. 125 pages. $1.25.

AREA MANPOWER GUIDEBOOK: *174 Metropolitan Labor Market Areas*. By the Bureau of Employment Security, U.S. Department of Labor. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., 1957. 348 pages. $1.75.

MEASURING & IMPROVING PERSONNEL PROGRAMS: *Management Report No. 260*. By Guy B. Arthur, Jr. Research Division, California Personnel Management Association, Fifth Floor, Farm Credit Bldg., 2180 Milvia Street, Berkeley 4, Calif., 1958. 10 pages. $1.00.

THE OUTLOOK FOR WAGES AND PROFITS: *Management Report No. 239*. By Louis J. Kroeger. Research Division, California Personnel Management Association, Fifth Floor, Farm Credit Bldg., 2180 Milvia Street, Berkeley 4, Calif., 1958. 7 pages. $1.00.

GOVERNMENT AND THE UNEMPLOYED: *The Summaries of Two Books*. Public Administration Service, 1313 East 60th Street, Chicago 37, Ill., 1958. 51 pages. Gratis.

PROFIT SHARING IN MANUFACTURING BUSINESS. By the Council of Profit Sharing Industries, 400 West Madison Street, Chicago 6, Ill., 1958. 38 pages. $2.00.

PROFIT SHARING, ITS ADMINISTRATION. By the Council of Profit Sharing Industries, 400 West Madison Street, Chicago 6, Ill., 1958. 38 pages. $2.00.

INDUSTRIAL RELATIONS IN POSTWAR JAPAN. By Solomon B. Levine. University of Illinois Press, Urbana, Ill., 1958. 200 pages. $4.25.

THE I.L.O. IN A CHANGING WORLD: *Report I*. By the International Labor Office, 917 Fifteenth Street, N.W., Washington 5, D.C., 1958. 127 pages. $1.00.

PROFIT-SHARING IN SERVICE BUSINESS. By the Council of Profit Sharing Industries, 400 West Madison Street, Chicago 6, Ill., 1958. 39 pages. $2.00.

A PREVIEW OF THE LEISURE YEARS. By Retirement Education, Inc., Caxton Building, Cleveland 15, Ohio, 1957. 32 pages. Gratis.

JOB DESIGN: *Meeting the Manpower Challenge*. By George H. Hieronymus. Society for Personnel Administration, 5506 Connecticut Avenue, N.W., Washington 15, D. C., 1958. 42 pages. $1.00.

TRAINING AND DEVELOPING SALESMEN: *Vol. 1. The General Forces That Mold Today's Salesman*. Prepared by The Research Workshop of The Sales Executives Club of New York, Inc. Printers' Ink Books, 100 Garfield Avenue, New London, Conn., 1957. 80 pages. $3.00.

PERSONNEL POLICIES DURING A PERIOD OF SHORTAGE OF YOUNG WOMEN WORKERS IN PHILADELPHIA. By Miriam Hussey. Industrial Research Unit, Wharton School of Finance and Commerce, University of Pennsylvania, Philadelphia, Pa., 1958. 48 pages. $1.00.

who's who in this issue

EARLIER THIS YEAR, when **Bernard Haldane** demonstrated his "Success Pattern" procedures at an AMA seminar, the response was so enthusiastic that we asked him to expand his remarks into a full-length article. "How to Find the Best in Every Man" (page 9) is the result. Mr. Haldane, who has just joined the faculty of Fairleigh Dickinson University, was born in Brentwood, England, and came to this country in 1930. In 1947, following a stint as labor relations and associate editor of the New York *Journal of Commerce,* he founded Executive Job Counselors, Inc., an organization that has steered numerous executives along the road to success. The procedures developed by Mr. Haldane have been applied in such diverse and authoritative quarters as the Harvard Business School, the Labor Department's Division of Rehabilitation and Training, and the Society for the Advancement of Management. International recognition for his work on talent identification, manpower utilization, and executive development came to him when he was invited to address the delegates to the Eleventh International Management Congress in Paris on the topic, "The Executive of the Future."

Asked for some colorful details about himself, **Robert F. Peck,** author of "What Makes a Man Creative?" (page 18), confessed that he was unable to think of anything out of the ordinary. "I guess I just lead a dull life," he sadly concluded. Well, the fact that he has made intensive personality studies of over 15,000 business men may be all in the day's work to Dr. Peck, but it rather leaves us wondering what his idea of an extraordinary occupation might be. Dr. Peck, who has just been awarded a $320,000 grant from the National Institute of Mental Health to conduct a five-year research program in mental health education, is engaged in research and graduate teaching at the University of Texas. He is also a director of Management Development Services, of Chicago and Austin. In 1947, working out of The University of Chicago with Burleigh Gardner and W. E. Henry, he pioneered the first successful use of projective techniques in industry.

Robert Hoppock, author of "Can Appraisal Counseling Be Taught?" (page 24), is a professor who has met a payroll. Actually, from the efficient way he tackled his assignment for PERSONNEL it came as no surprise to us to learn that he owned and operated a successful publishing business for 10 years and ultimately sold it at a profit. Dr. Hoppock's administrative talents seem to have been equally successfully deployed at New York University, where he's been training counselors for nearly 20 years—under his chairmanship, enrollment in the

Department of Guidance and Personnel Administration has increased tenfold. He is the author of books on job satisfaction, group guidance, and occupational information, as well as of numerous magazine articles. Dr. Hoppock omitted to tell us by what academic route he reached his present eminence as a counseling expert, but we gather that he did not have to go to school to find out what kinds of counseling don't work. This, he says, resignedly, he learned from his daughter.

"Calculating the Cost of Labor Turnover" (page 31), by **Frederick J. Gaudet,** is a follow-up to a previous article by Dr. Gaudet which we published in our March-April issue. Since, on that occasion, we gave a fairly comprehensive rundown of our author's career to date, here we shall content ourselves with recapitulating its highlights, to wit: two degrees from Harvard and a Ph.D. from Columbia, plus a lot of direct experience in commerce and industry. Dr. Gaudet is Professor of Psychology and Director of the Laboratory of Psychological Services at Stevens Institute of Technology.

Offhand, we would have said that the Research Division of the Prudential Insurance Company's Western Home Office was a fairly down-to-earth sort of outfit, but we have it on the authority of **James H. Myers,** joint author of "Research Administration: The 'Associate' Approach" (page 38), that it isn't at all the kind of place where nobody dares take time out from the personnel, marketing, or investment research project of the moment. Actually, Dr. Myers, who is the Division's manager, sounds an ideal research administrator: B.S. in Mechanical Engineering, University of Wyoming, Ph.D. in Industrial Psychology, University of Southern California; hobbies, golf and hi fi; biggest frustration, trying to keep up with the volume of worthwhile reading material in good periodicals. His co-author, **William A. Carter,** joined the Prudential shortly after graduating from the University of Southern California. Aside from economic, sales, and cost analyses, Mr. Carter's activities in the Research Division have encompassed such projects as a study of the feasibility of shooting a 10-ton truckload of bobcats along the lower Mississippi River—a problem posing some particularly relevant questions for a business researcher, such as, "How big is a 10-ton truck?" and "What is the stacking efficiency of a bobcat?"

Thomas Q. Gilson, who contributes "Some Significant Projects in Recent Management Research" to this issue (page 43), is Professor of Industrial Relations at Rutgers University and Chairman of the Department of Management. He is also a partner in the management consulting firm of Raritan Associates. Dr. Gilson, who holds degrees from Princeton and Columbia, obtained his Ph.D. in economics and social science at MIT. Before going to Rutgers he was concurrently assistant on the Sloan Program for Executive Development at MIT and a research associate at Harvard. He had experience as a Training Director and Personnel Director both during and after the war, in addition to holding other university teaching posts.

John C. Flanagan, author of "Personnel Research and the Better Use of Human Resources" (page 50), is President and Director of Research of the American Institute for Research in Pittsburgh, which he founded in 1946, and also Professor of Psychology at the University of Pittsburgh. Dr. Flanagan, an alumnus of the University of Washington, obtained his Ph.D. at Harvard. As Associate Director of the Cooperative Test Service of the American Council on Education from 1935-1941, he supervised the development and standardization of educational achievement tests that have since been extensively used in schools and colleges throughout the country. During the war, when he served as Director of the Aviation Psychology Program and Chief of the Psychological Branch of the Office of the Air Surgeon, Dr. Flanagan was in charge of research leading to the selection and classification of air crew candidates, as well as on problems of training, combat leadership, adjustment to combat operations, and rehabilitation. At the AIR, he has directed more than 125 research projects in a variety of fields. Best known to the layman, perhaps, for his "critical incident" technique, Dr. Flanagan recently received the Personnel and Industrial Research Association's first PIRA Research Award for outstanding research contributions to the art and science of personnel management.

Another contributor who balked somewhat at our request for some offbeat details about himself is **Herbert Stein,** author of "An Economist Looks at the Shorter Work Week" (page 60). Somewhat provokingly, he said he could think of nothing of interest to the readers of this journal. Nevertheless, we were mollified to learn from the biography he did send us that in 1944 he walked off with the $25,000 first prize for the best essay among 35,000 entries in the Pabst Postwar Employment Awards. That's about as offbeat as we personally ever hope to get. Mr. Stein, who is Director of Research of the Committee for Economic Development, is a graduate of Williams College. After doing graduate work at The University of Chicago, he entered the Federal service as an economist, and worked in several government agencies before joining the staff of the CED in 1945.

After scanning the bleak particulars furnished us by **Howard W. Johnson,** author of "Developing Engineers for Management Responsibility" (page 66), we put in an anguished call to MIT. Surely, we said to Mr. Johnson, he could find something more to say about himself than that he had recently been appointed Associate Dean of MIT's School of Industrial Management. Of course, Mr. Johnson said. The reason he hadn't bothered to write up his biography was simply that these things are always so damned dull. Since we couldn't have agreed more, rapport was immediately established, and it was no trouble at all to extract from Mr. Johnson (who is also Associate Professor of Industrial Management at MIT) such facts as that he has been director of the School's executive development activities, including the Sloan Fellowship Program and the Program for Senior Executives, since 1955,

and was formerly Assistant Professor of Industrial Relations at The University of Chicago School of Business. He holds an M.A. from The University of Chicago and spent a year in special study at Glasgow University. Somewhere along the line (our notes are a bit hazy on this point) he also served as Assistant to the Vice President of Personnel at General Mills, Inc.

Angry young men being all the literary vogue these days, it was only to be expected that sooner or later PERSONNEL would snare one, too—though we rather doubt whether **Edward M. Krech, Jr.** viewed himself in this light when he sat down to write "What Students Think of Campus Recruiters" (page 72). Actually, aside from his ire, our AYM bears little or no resemblance to the general run of authors in this particular category. A graduate in Mechanical Engineering from Cornell, Mr. Krech served for two years in the U. S. Navy before returning to Cornell to obtain his M.B.A. this year. Since we accepted his article, he has accepted the position of Engineer in the Overseas Division of Procter & Gamble. He was kind enough to suggest that in view of his changed status we might prefer to cut out his tribute to P & G's excellent recruiting practices; but figuring that that organization would survive whatever we did, we decided to let it stand.

Like Spinoza, **Morton Adelberg** started out in life as a lens grinder, an occupation that, while perfectly adequate for the needs of the famed philosopher, seems early to have palled on the author of "A Tested Approach to Engineer Salary Administration" (page 77). (The thought crosses our mind that had there been a personnel field to get into in Spinoza's day, he would never have had the time to write his *Ethics,* but we'll let that pass.) Anyway, to get back to Mr. Adelberg, who is probably beginning to wonder already what's Spinoza to him or he to Spinoza, after forsaking the lens-grinding business he became a social case worker, graduated from Temple University with a B.S. in Education and an M.A. in Eperimental Psychology, and then worked for two years as a Position Classifier with the Department of the Army. In 1952, he joined Vertol Aircraft (then the Piasecki Helicopter Corporation) where he now holds the position of Supervisor of Wage Administration. He is also doing graduate work at St. Joseph's College, Philadelphia.

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